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USSR REPORT MILITARY AFFAIRS

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Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 1-2

[Full-text translated articles published in this report are indicated with an asterisk(*); excerpted translation - with a double asterisk (**)]

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Belgian SIBMAS Armored Personnel Carrier - French "Mirage-F.1C" Fighter -
American CV62 "Independence" Multipurpose Aircraft Carrier - West German
MSM Ground-Based Remote Mining System

Articles of Soviet Authors and chronicle prepared from materials in the foreign
press. Used in the edition are illustrations from the "Janes" reference book and
the following journals: AVIATION WEEK AND SPACE TECHNOLOGY, ARMADA INTERNATIONAL,
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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON NATO AND CHINA AS PARTNERS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 8-13

[Article by Lt Gen D. Volkogonov, doctor of philosophical sciences, professor: "Beijing-NATO: Partnership of Militarists"; passages rendered in all capital letters printed in boldface in source]

[Text] World reaction, headed by U.S. imperialism, is persistently leading matters toward the return of mankind to the days of the "cold war," having finally rejected detente. It is namely in such a political atmosphere that the most adventurist leaders of the United States hope to attain their global goals: "world leadership" and military superiority over the countries of the socialist commonwealth. Despite the obvious groundlessness of such calculations, there should be no underestimating the readiness of militaristic circles, as was noted at the 26th CPSU Congress, "to stake the vital interests of mankind for their own narrow, mercenary motives." All the more since today the hegemonistic policy of the Beijing leadership furthers their aggressive activity.

WHAT IS STIMULATING BEIJING TOWARD RAPPROCHEMENT WITH IMPERIALISM? The main goal of the Beijing leadership, although far off in time, consists of the attainment of world hegemony and the creation of a state which is so powerful that it could have a decisive influence on the fate of the world. Deng Xiaoping--the "strong man" in the Chinese government--declared at a conference of the highest cadre personnel which took place in Beijing on 16 January 1980, that "we consider the transformation of present-day China into a mighty power our general policy." The notorious program of the "four modernizations" also serves this very goal. However, in Beijing they understand that "relying on their own strength," the PRC will not even be able to approach the level of the economic, technical, and scientific development of the industrial countries for long years to come. Thus, the incommensurability of the tremendous country's ambitious goals and real capabilities can be overcome, according to the thought of the Beijing leaders, only on the rails of drawing closer to imperialism on the common platform of anti-Sovietism. It is namely this which can explain Beijing's support of the majority of the militaristic actions of the United States and NATO in the international arena. Rapprochement with the West is considered as a strategic procedure in the accomplishment of a unique leap to the status of "superpower."

In recent years dozens of highly-placed delegations from capitalist countries have been in Beijing with visits during which the "proximity of strategic interests,"

"mutual concern," and "parallelism of views" were discovered. A qualitatively new stage is contemplated behind these phrases: the transition to direct military collaboration which is extremely dangerous for the fates of the world.

When the propaganda dust settles after such visits and meetings, it becomes even more obvious that if yesterday China was imperialism's reserve, today it has been transformed into its actual ally or, as it is often called in Atlantic circles, the "16th member of NATO." The political flirtation has been transformed into real rapprochement and then into the sinister alliance of Maoism and imperialism. In so doing, Beijing is pursuing its own, especially pragmatic goals.

First of all, it is trying to attain such unification with the West (and also with Japan) that would place the countries of the socialist commonwealth under extremely disadvantageous political conditions which weaken their might and solidarity. The struggle against detente, against cessation of the arms race, and against the Soviet peace program was also the main channel for the most rapid restoration of contacts and the establishment of all-around collaboration between China and NATO. After 1972, when Nixon and Kissinger first conducted talks in Beijing, extremely active political ties were formed between the Chinese capital and the Western political centers which were strengthened by numerous visits of state figures of various ranks and secret understandings. "A simple calculation is hidden behind the readiness of the United States, Japan, and a number of NATO countries to expand military-political ties with China," it was stated at the 26th CPSU Congress, "--to exploit its hostility toward the Soviet Union and toward the socialist commonwealth in their own, imperialist interests."

The administration of President Reagan sees in China a serious counterbalance to the Soviet Union in Asia, looking on it in essence as a significant anti-Soviet force. The U.S. Secretary of State, A. Haig, has repeatedly declared with the directness of a former general that "the views of the United States and China on the international situation have never been as close as now." In confirmation of this thesis, he called the successful development of American-Chinese "strategic relations" directed toward the "limitation of the Soviet Union's capabilities to use its military might" an accomplished fact. Everything stated testifies to the actual creation of the political alliance of Beijing and Washington.

In addition to political advantages, the Chinese leaders also hope to obtain economic gain from the alliance with imperialism. They see on the rails of drawing closer to the NATO states almost the main path for ensuring their notorious militaristic program of the "four modernizations." The leaders in Beijing are achieving (and not unsuccessfully) the obtaining from the developed capitalist countries of large credits, the construction of enterprises on a compensatory basis, and the acquisition of advanced technology--all this primarily to strengthen the military might of China which, for a long time already, has actively been buying in the West vessels, rolled stock, instrumentation, electronic computer equipment, machine tools, mining equipment, and so forth. After conclusion of an agreement with the "Common Market" in Brussels, China was granted "most favored nation status" in trade. From the end of 1980, the U.S. Government approved the issuing of more than 500 export licenses which permit China to expand sharply the variety of equipment and technology being purchased and which can also be used for military purposes. True, during the last two years the delight of the leaders of the Western and Japanese monopolies which was caused by the prospects of economic collaboration with Beijing began to diminish

noticeably. The fact is that China, not possessing large currency capabilities, as it turned out, is unable to pay for the many contracts which have been signed and did not even stop at the unilateral repudiation of agreements previously concluded. And many firms are seeing for themselves the doubtful reliability of their new partner.

The initiation of economic ties also furthered the establishment of collaboration in the military-technical sphere. For example, in 1980 a number of big deals were concluded for transmitting to China military technology and, strictly, so-called "dual-purpose" military equipment: radars, military transport aircraft, helicopters, and other types. Beijing established substantial ties in this field not only with the United States, but also with the FRG, Great Britain, France, and Italy. Special activity is displayed here by the Tory government which has offered China a wide variety of military goods. For example, the British company "British Aerospace" has signed big contracts for the delivery of electronic equipment for the Chinese aviation industry. Beijing is expressing its readiness to acquire the American C-130 military-transport aircraft and "Chinook" helicopters and West German tanks and artillery. Today the Chinese war department is interested not only in traditional weapons and combat equipment. Its attention is riveted to any information pertaining to cruise missiles, space equipment, the neutron bomb, new missile systems, latest-generation computers, and so forth. And it should be said that in the West there are figures who relate to Beijing's military pretensions with "understanding."

In analyzing the alliance which has been formed, foreign specialists also note the presence of a number of almost insurmountable contradictions between the parties. They include carefully concealed suspicions concerning the long-term goals of one another, the difference in political and socio-economic structures, and the inequitable nature of this military alliance in which one side is trying to strengthen its military-technical base at the price of political and ideological concessions, and the other--to make the junior partner an obedient assistant. The Western press also stresses the different approach to policy as regards Taiwan, the Philippines, Indonesia, and so forth. Thus, now American-Chinese relations have become, as expressed in Washington, somewhat cooler due to the intentions of the Reagan administration to sell Taiwan a big batch of the latest weapons.

In considerable measure, this unofficial alliance also bears not only a long-term but, at the same time, competitive nature to which many bourgeois politicians and scholars are calling attention. Thus, after a trip to China a group of American senators headed by J. Glenn, in particular, wrote in their report: "The PRC is drawing closer to the United States, pursuing its goals of transformation into a mighty superpower. Where China will then go and how it will structure its relations with America--no one knows. The American sinologist T. Millar speaks even more specifically about the alliance: "In the future China, having become powerful, will not become 'one of us' or 'like us.' Being strong, it will become dangerous for all." However, both in Beijing and in a number of NATO organs today they are inclined to underestimate these contradictions, maintaining the line for strengthening military-political collaboration which is dangerous for the fates of many peoples.

FROM RAPPROCHEMENT TO MILITARY COLLABORATION. Recently American officials, in commenting on various understandings with the Beijing leaders, assert more and more

often that the decision adopted by the Reagan administration concerning the sale of offensive weapons to China is "not revolution, but evolution." They say that not only the present administration moved toward this position, and the decision to sell weapons of an offensive nature is completely "logical and justified." Officials from the Pentagon often add that the nature of the military ties between Beijing and Washington is determined by the formula, "For we are not allies, but only great friends." But this verbal camouflage cannot deceive soberly-thinking people. Of course, such an approach is justified if one reasons in the language of the militarists. In essence, the decision of the American administration marks the beginning of a qualitatively new stage in the American-Chinese rapprochement which is expressed in the establishment of actual allied relations in the military sphere. And although in the White House, in trying to calm public opinion, they nevertheless say sometimes that "only the status of China as a potential receiver of military equipment has been changed," the facts testify to something different. Judging from reports in the foreign press, the military collaboration between the partners is already being accomplished in many directions.

Thus, for example, it is known from the foreign press that the question of selling to the PRC American surface-to-air missiles, antitank weapons, and several models of contemporary combat aircraft and computer equipment is now being examined. Considering Beijing's limited foreign currency capabilities, in the opinion of bourgeois military observers, the version of "joint production" of individual types of combat equipment and weapons is not excluded. In their opinion, this would permit the Chinese to produce armaments under American licenses, which would be cheaper for them. Washington is also examining the question of granting China favorable credits, thanks to which the Beijing hegemonists could speed up the modernization of their army on a contemporary technical basis.

In response to the declaration of the Beijing leaders that "China wants to have the same military ties with the United States as the United States has with Egypt," the NATO committee on monitoring exports (COCOM) also lifted restrictions on the sale of offensive weapons to her. In the Pentagon, it is presumed that such declarations testify to Beijing's intention to acquire such modern armaments as have already been delivered or are planned for dispatch to the Arab Republic of Egypt, for example, F-16 fighter-bombers, the TOW antitank guided missile, electronic equipment for missile systems, and others. Department of Defense officials from the banks of the Potomac relate extremely favorably to such pretensions of the Beijing militarists. In one of his speeches the U.S. Secretary of Defense, C. Weinberger, let it be clearly understood that China will receive much of what she desires to receive.

There are also those spheres of military "collaboration" where certain steps have already been taken and are being taken. For example, during A. Haig's trip to Asiatic countries the NBC Television Company reported that several stations for electronic tracking of Soviet territory have been created in China and are operating. The personnel of these intelligence stations consist of Chinese who are being directed by American instructors from the CIA. In January 1982, the Japanese newspaper YOMIURI reported on the attainment of a basic agreement between Beijing and Washington on the use of several Chinese ports as ports of call for the U.S. 7th Fleet. NATO circles make no secret of the fact that an exchange of intelligence information between Washington and Beijing has already been taking place for a long time.

According to data in the Western press, during numerous meetings of military leaders of the two partner countries an understanding has also been reached concerning the participation of American specialists in the training of military cadres for the Chinese armed forces, especially those of a technical engineering category. Already in 1982, the arrival of lecturers, consultants, and specialists in Beijing from the United States is expected to teach work on American military equipment. The number of Chinese students studying in the United States in departments on those specialties which can be widely used in the war industry and military-scientific studies is growing.

The list of similar facts could be continued. But it is not only the matter of them, but of the strategic line to which the leaders of the most aggressive forces are now trying to adhere: the forces of American imperialism and Beijing hegemony. This line signifies a course toward the further militarization of international life and intensification of the danger of armed conflict on a global scale and toward the knocking together of a broad anti-socialist front. The alarming consequences of such a policy are obvious.

The "Chinese factor" is frankly considered even now in NATO's strategic plans. In scenarios and models of possible conflicts which are being created, various situations are gamed and envisioned which are connected with Beijing's participation in military adventures. "Who could have thought even five years ago that by the 1980's Western strategists would not only not portray China as the enemy in their plans, but could even count on its military assistance," writes H. Harding in the book "China and the United States." However, the danger of such plans is also beginning to be understood by those who recently welcomed them. Sober analysts note that the "alliance" which has been formed is only capable of worsening prospects for international development and seriously complicating relations between the USSR and the United States. Thus, the American specialist in the field of international relations, O. Bow, writes in the book "Novyy povorot" [New Turning Point]: "Military collaboration with Beijing worsens relations with Moscow and this, in the final analysis, is dangerous for peace."

Being transformed into actual allies of Beijing, American and European "friends" should have seen the danger of such a course. In fact, according to the estimate of foreign specialists, already by the end of the 1980's China may represent a direct threat for them. The difficult predictability of Chinese policy and Beijing's frank hegemonistic ambitions make such a possibility extremely real. This is also seen by several bourgeois analysts of American-Chinese relations. Many of them note that the Chinese leadership has not given up the thought which was formerly put forth by Mao that the best version for the development of world events would be a situation in which the USSR and the United States would succeed in clashing in a nuclear fight and China would extract the entire advantage from this situation.

Unfortunately, the voices which call for caution and consideration in relations with the PRC are drowned out today by the strong chorus of NATO militarists. Not everyone as yet realizes that Beijing may draw its allies into adventures which are fraught with serious consequences for the imperialist countries, too. Many Beijing politicians, in striving for hegemony, hardly shudder before the prospect of the transformation of entire states into desert.

NEGATIVE CONSEQUENCES OF THE MILITARISTIC PARTNERSHIP. The rapprochement of China and the countries of the North Atlantic bloc in the military sphere is exerting an extremely negative influence on the international situation and making the world unstable. This thesis is disclosed in the foreign press with consideration of those consequences which flow from the fact of intensification of the military collaboration of Beijing and NATO.

One of these negative consequences is the whipping up of the arms race in the capitalist world and in China. On the basis of imperial doctrinal lines put forth by the new White House administration, the United States has decided to increase its military budget by more than five percent annually. If at the beginning of the 1970's American military-political figures acknowledged the presence of strategic parity between the United States and the USSR, now, feeling the actual military support of the Beijing leadership, they have again openly declared their claims to "world leadership." It is not difficult to see that such a course is only capable of whipping up the arms race which, as it is, has attained dangerous dimensions, and of complicating the international situation even more. Developments of fundamentally new models of weapons, the increase in the number of American bases on foreign territories, and the creation of mobile task forces are called upon to introduce an imbalance in the correlation of forces which has formed.

At the same time, the NATO countries are also furthering the spinning of the hand-wheel of the arms race in China where, as is known, approximately 40 percent of the state budget goes for militaristic purposes. The military budget of this country is now like a steeple which is being erected above the flat plain of social programs. The situation of military preparations is playing into the hands of the Chinese leadership because under these conditions it hopes to obtain access to the NATO arsenals more rapidly.

Another negative consequence of the Maoist-imperialist alliance is the more impertinent joint interference of the United States, China, and several European NATO countries in the affairs of various peoples and states. If we cast a retrospective glance, it is not difficult to see that in all crisis situations which have arisen in one or another region of the planet, Beijing always strived to find a way to aggravate them and openly support the imperialist, reactionary forces. This is how it was as regards the conflicts in the Near and Middle East and in other regions of the world. Today Beijing and Washington are making more active and coordinating their subversive efforts against democratic Afghanistan, directly violating the sovereignty of an independent state. The progressive observer, S. Mookerjee, writes in the book, "The American-Chinese-Pakistan Axis Threatens India," that at the beginning of 1981 alone the Chinese trained and sent to the Democratic Republic of Afghanistan more than 15,000 saboteurs, using for this purpose the Karakorum Highway which was constructed by China in the Indian part of Kashmir which was occupied by Pakistan. Beijing's interference in Afghan affairs is also continuing up to the present. With the silent approval of the Beijing leaders, the United States is increasing its military presence in the area of the Persian Gulf, transforming it into one of the most dangerously explosive regions on the planet.

All this gives foreign specialists grounds to assert that a certain military-political mechanism for the coordination and working out of decisions on various international problems and crisis situations has now been formed between Beijing

and Washington as well as several other NATO states. Thus, the world has not forgotten that after the visit of Deng Xiaoping to the United States and talks with American leaders, aggression against Vietnam soon followed, after the visit of H. Brown to Beijing American-Chinese subversive operations against the Democratic Republic of Vietnam became more active, and after the trip of the Deputy Premier of the PRC State Council (now also minister of defense) Geng Biao to the United States, raids by the Pol Pot bands against Kampuchea from the territory of Thailand became more active. After the visit of A. Haig to Beijing, the militaristic course of the United States and China became even harsher, the buildup of tension in international relations is continuing, and acute conflict situations are being created in various regions of the world. As is evident, the American-Chinese "mechanism" for coordination of military-political actions is extremely dangerous for the cause of peace and testifies to the intensification of militaristic trends in the NATO countries and China.

One more consequence of the negative influence of Beijing's rapprochement with the North Atlantic bloc is the freezing of detente and the emergence of those processes which again threaten to drive mankind into the foxholes of the "cold war." From the very beginning, the Maoists initiated a struggle against detente. The chairman of the Central Committee of the Chinese Communist Party, Hu Yaobang, in speaking before Western correspondents, said unambiguously: "With the aid of so-called detente the social-imperialists are trying to lull the vigilance of the peoples and achieve their hegemonistic goals." In commenting on the Soviet-American talks on limiting nuclear weapons in Europe which had begun, Deng Xiaoping frankly declared to foreign journalists in January 1982 that he does not believe in the success of the talks which, he says, are advantageous only for the USSR. In this case, this viewpoint coincides with the views of the most wicked imperialist "hawks."

To counterbalance the idea and practice of detente, the Beijing leaders are not stopping the apologetics of war. By means of the psychological "massaging" of the consciousness of the Chinese people, the Beijing propagandists are striving to introduce into it stereotypes of the myths of war's inevitability and bourgeois fabrications about a "Soviet threat" and "unprecedented preparations of the northern bear. The French sinologist, (Zh. Dob'ye), in the book "China's New Masters," notes that "even the thought of Beijing's acceptance of detente appears seditious and opportunistic there. The striving to become a superpower obliges China to reject detente decisively."

Obviously, the rejection of detente by the Maoists and the most reactionary imperialist circles not only creates an additional sphere of "common interests" among them but also actually worsens the already difficult international situation, reviving numerous relapses of the "cold War." The alliance between Beijing and NATO which has actually arisen, as foreign specialists stress, testifies to the further turn to the right in the course of the Maoists who henceforth are conducting a frankly pro-imperialist foreign policy, following the lead of the NATO states in the most important questions of world policy.

Under contemporary conditions, it is very important that as many people as possible on the planet realize the entire depth of the danger in the rapprochement of the Maoists and imperialists, for the struggle against this collusion, which is fraught with serious consequences for the future of the peoples, can thereby be more effective. Honest people of the world are disturbed today not only by the fact that the

American militarists are rattling the latest weapons, but also by preparations of a militaristic nature which the most populous country in the world--China--is conducting. The outlines of the military alliance are now seen too clearly for peace-loving forces to underestimate it. As regards the Soviet Union, for its part there was no threat to the Chinese People's Republic and there is none. In the speech of Comrade L. I. Brezhnev in Tashkent on 24 March 1982, specific proposals were again put forward for the normalization of relations between our countries which would not only meet the interests of the Soviet and Chinese peoples, but also the strengthening of peace on Earth. The matter depends on China.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON DESERT TRAINING OF U.S. GROUND FORCES

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[Article by Col K. Samigulin and Col N. Sadykov: "Combat Operations in the Desert"; according to the views of American specialists. Passages rendered in all capital letters printed in boldface in source.]

[Text] In recent years, the military-political leadership of the United States has been displaying special activity in the Near East as well as in Africa, a considerable portion of whose territories are deserts. It would appear that the vast, arid and sparsely populated areas should not be of special interest if there were not one circumstance--oil. With the contemporary growth in the consumption of petroleum products, the factor of resources is acquiring not only primary economic, but also military significance. "The monopolies need foreign oil, uranium, and nonferrous metals, and the United States has declared the Near East, Africa, and the Indian Ocean to be its sphere of 'vital interests.' The war machine of the United States is actively penetrating there and intends to stay for a long time. Diego Garcia Island in the Indian Ocean, Oman, Kenya, Somalia, Egypt--what next?" it says in the accountability report of the CPSU Central Committee to the 26th Party Congress. This is why it is stressed in a number of manuals of the U.S. Ground Forces that American troops can be sent for the conduct of combat operations in desert areas. And in the system of operational and combat training of staffs and troops, a prominent place is allotted to training them for operations under conditions of desert terrain.

The United States is conducting practical measures to realize its aggressive plans in the Near East. They should include the creation of the interventionist "Rapid Deployment Forces," rendering open military assistance to reactionary regimes of this region, the formation of so-called "multinational forces" on the Sinai Peninsula, threats and provocations in regard to Lebanon, and finally, the conduct of large maneuvers for a show of force and to exert pressure on countries with progressive trends in the development of statehood.

Thus, in the course of Exercise "Bright Star" (conducted at the end of 1981 on the territory of Egypt, the Sudan, Oman, and Somalia) problems in the transfer of troops and methods for intrusion into the territory of countries of the Near East and the conduct of combat operations under the region's actual conditions were worked out.

Some special features in combat operations of American troops in the desert will be examined below in accordance with data from materials of the U.S. military press.

As Western military specialists note, the basic principles in the planning, organization, and conduct of a contemporary battle (operation) under regular conditions are also acceptable in the desert. However, here it is necessary to consider the specific features which influence the combat operations of the troops and ensure their vital activity. They should include, first of all: the primarily flat, open nature of the terrain, the almost total absence of vegetation, sparse and primarily small populated places (oases), a poorly developed network of roads, a limited number of water sources (sometimes their complete absence), a hot climate with a large daily temperature amplitude, a small amount of precipitation, frequent winds and dust (sand) storms, and unfavorable sanitary-epidemiological conditions (typhus, malaria, dysentery, cholera, infectious jaundice, and so forth).

The flat nature of terrain which is devoid of vegetation, on the one hand, facilitates the organization of observation and, on the other, hinders orientation and topogeodetic tie-in, complicates the camouflage of the troops, and creates difficulties in the accurate determination of target coordinates. This factor causes the necessity for the wide employment of distracting measures and means for camouflage and simulation (camouflage nets and paints, mock-ups, dust clouds, smoke screens, and false paths) and it also imposes restrictions on radio communication. Operations of troops in the nighttime, especially by small units, acquire important significance on such terrain. In turn the heat, sand, and dust have a destructive effect on the equipment, metal surfaces and engines overheat, the operating conditions for all assemblies are violated, and electron-optical equipment, engines, tracks, tire casings, and other systems wear out more rapidly than under normal conditions.

As foreign experts note, desert conditions exert an unfavorable influence on personnel who have not undergone special training. The prolonged action of the Sun's rays and the constant high air temperature cause increased perspiration, burns on the body, and dehydration of the body (death is possible with the body's loss of fluid in the amount of 15 percent of the body weight) as well as convulsions, passivity and weakness, and very often--heat strokes. In addition, psychological deviations appear in the servicemen--mental fatigue, disruption of perception, and a state of depression. All this, in combination with the difficulties of the combat situation, may prove to be the reason for the low combat effectiveness of large units and units. Therefore, a special camouflage uniform is envisaged for the personnel under such climate conditions: helmet, protective goggles, cotton jacket with long sleeves and trousers, wool sweater, boots, cloth belt, wool and cotton scarves, and water bottle. Each serviceman is required to have along a sleeping bag, salt (in tablets), vaseline, and special powders (for the feet and to repel insects and reptiles). It is recommended not to remove clothing and to be in the shade more, using improved resting places, combat equipment, and so forth. It is believed that the strict accomplishment of preventive measures and rules of field sanitation and personal hygiene, observance of the necessary periods of acclimatization (at least 14 days), and the conduct of special (additional) training as small units are mandatory elements for ensuring combat operations of the troops under desert conditions.

According to the views of American specialists, it is necessary to create highly mobile groupings of troops for the conduct of combat operations on desert terrain. It is expedient to use mechanized, armored, and airmobile large units and units. A grouping which is being formed in the interests of an operation (battle) should be considerably reinforced by antiaircraft artillery and antitank weapons, army aviation subunits, and tactical aviation forces and, on maritime directions, by naval forces. The employment of motorized infantry units is permitted primarily for the defense of key terrain areas (sectors, positions) and important installations (ports, dumps, road junctions, airfields, sources of water supply, mountain passes, and dominant terrain sectors).

Desert conditions predetermine the necessity for the conduct of mobile decisive operations and the employment of maneuver (turning movements and envelopments, surprise flank attacks and raids, the landing of assault forces, and so forth). The principles of the dispersed disposition of the troops and their rapid concentration when necessary have very important significance in the desert as does firepower at the decisive moment on the direction of the main effort. Coordinated actions of units and subunits of different combat arms and services which are operating on separate directions with timely and effective fire support are considered an important means for the attainment of success.

Stable control of the troops is acquiring important significance. It is recommended that radio, wire, and courier service communications as well as various means of electronic warfare be widely employed for this in the attack as well as in the defense. Command posts in all elements are equipped with air conditioners, fans, and so forth.

During operations on desert terrain, it is recommended that special attention be devoted to the combat support of the troops (intelligence, engineer support, air defense, and so forth) and to rear services support (protection of lines communication, MTO [logistical support], medical, technical, and weather support, and replacement of losses).

American specialists believe that along with the organs of troop and aerial reconnaissance, detachments of "Rangers" or troops of the "Special Forces" will operate most effectively under such conditions in the interests of large units for the accomplishment of sabotage, terror, the organization of an insurgent movement, and so forth. Subunits of this type (in various uniforms) numbering from 10 to 50 men operate, as a rule, at night on light vehicles having high trafficability on which machineguns, heavy and light antitank and antiaircraft weapons, including portable surface-to-air missile complexes, and communication equipment are mounted. It is also planned to form such subunits from servicemen of line units after the appropriate additional training. In individual cases centers of special combat operations may be created.

The most important mission of engineer support is the scouting for and setting up of water sources. The water supply in each subunit is usually transported in special tank trucks. Water supply points are created in the rear areas of large units and units, and field pipelines are laid. Motor vehicle and air transport, caravans of pack animals (camels, horses), and teams of porters are used to deliver water. It is believed that the consumption of water (its temperature 10-15° C) per man per day will be six liters. Accordingly, for the normal support of vital activity

at least eight and five daily norms of types of allowances respectively should be maintained in the large units and units (ammunition, fuels and lubricants, food, and so forth--altogether nine types).

Technical support of the troops also has its special features. The difficulty in operating combat equipment makes necessary its more frequent preventive maintenance, thorough servicing, and repair.

THE OFFENSIVE. Desert terrain with its flat relief is basically favorable for the conduct of decisive, highly maneuverable offensive operations by all combat arms.

In accordance with the provisions of the American regulations, as a rule the offensive is conducted along separate directions which are convenient for the advance of the troops and it bears the nature of a struggle for militarily-economically and tactically important areas and objectives. In the desert, where space for the execution of maneuver is virtually unlimited, there always are favorable conditions for turning movements, envelopments, and deep raids into the rear of the enemy's dispositions which are accomplished by armored and mechanized troops in coordination with tactical airborne (airmobile) assaults and units attacking from the front. It is believed that a surprise and rapid maneuver ensures the effective exploitation of gaps between elements of the combat formation of the defending enemy and his open flanks and is a most important factor for the attainment of effective results from the attack.

Large units and units often may operate on independent directions. In such cases, they are reinforced by a larger quantity of personnel and weapons than during operations as part of a formation or large unit. Judging from the experience of exercises, the divisions of U.S. ground forces, for example, are additionally allocated a battalion of army aviation, subunits of helicopter gunships, and a battalion of Hawk surface-to-air missiles [SAM].

During an offensive in the desert, the width of the zones of attack and the depth of the combat missions may be greater than under regular conditions. Frequently, the depth of the combat missions of the large unit or unit is tied to a specific line or objective.

On directions which represent a significant difficulty for the attacking troops (sand dunes, loose sand, rough rocky soil, lack of roads), the depth of the combat missions and rates of attack are planned to be considerably less.

The attack often may begin on the distant approaches to the enemy's defense by deployment from the march or by moving out of an assembly area which is up to 80 kilometers from the probable line for encountering the enemy. It includes the following stages: advance to contact, the attack itself, exploitation, and pursuit. Depending on the specific situation, the attack itself may be conducted from the march or prepared ahead of time (with an attack from direct contact with the enemy the stage of the advance to contact is absent). When organizing the attack, it is recommended that commanders and staffs devote attention to the close combination of the activity of air and ground reconnaissance organs to obtain reliable and timely information about the enemy and the true position of targets and objectives on the ground in front of, to the flanks, and in the rear of his defense. A special feature

is the fact that on the direction of the main effort the neutralization of enemy weapons and personnel and reconnaissance (observation) and control systems in a short time is ensured.

Meeting engagements may arise on desert terrain more frequently than under normal conditions. In this type of battle it is considered important to seize the initiative and preempt the enemy in the deployment of the main body and the launching of a strike in the flank and rear.

In selecting the direction for the main effort, it is recommended that the possibility of executing a maneuver which is effective and unexpected by the enemy be considered first of all. Depending on specific terrain conditions, the direction of the main effort may be selected with consideration of known water sources and convenience in the delivery of material resources. It is recommended that natural conditions which are favorable for the attackers be used, that is, they should move out and attack from the direction of the Sun and with the wind where possible immediately after a sand storm and should also consider factors which are unfavorable for the enemy such as fog, haze, mirages, dust clouds, and the Sun's blinding effect.

The organization of the combat formation of large units and units depends greatly on the nature of the terrain and the enemy's defensive system. It is believed that when determining it the commander must envision the support of open flanks and the possibility for independent operations of subunits and units which are operating separated from the main body. The large unit (unit) may attack in one or two echelons; in this case tactical groups with the predominance of tanks in them are formed. Along with other elements, the combat formation of the large unit usually includes enveloping detachments and tactical airborne and airmobile assault forces. Depending on the content of the mission being accomplished, the composition of the enveloping detachment may be from a reinforced battalion to a brigade.

Enveloping detachments are reinforced by subunits of artillery, antiaircraft weapons, engineer troops, and logistical support. Their operations are supported by tactical air and helicopter gunships.

As a rule, the attack in the desert begins with the troops moving out of the assembly areas (advance to contact) and their crossing the enemy security zone. The division usually moves out over three or four routes of march. When the enemy has a security zone, it is recommended that it be surmounted by the forces of the reconnaissance subunits and advance guards. Fire support of friendly troops which are operating in this zone is accomplished by artillery units and subunits which are part of them. Personnel and weapons of tactical and army aviation are drawn upon for its reinforcement.

The fire preparation begins with the approach of the main body to the enemy FEBA [forward edge of the battle area]. Its goal is the neutralization of troops which are occupying the defense on the directions of attack, weapons, command posts, and reserves. It is recommended that fire be conducted on targets which have been located. Helicopters are usually detailed to artillery units for reconnaissance and the adjustment of fire.

Depending on the nature of the terrain and the degree of preparedness of the enemy's defense, the attack of the FEBA is accomplished on infantry fighting vehicles or armored personnel carriers, and more rarely in dismounted formation.

The units of the first echelon can attack simultaneously or at different times, depending on the conditions for the advance to contact and crossing the security zone. Here the close coordination of the units attacking from the front and the subunits with the enveloping detachments and assault forces is considered necessary.

When the attacking subunits reach the safety line, the artillery switches to fire support of the attack which is accomplished by the method of successive fire concentrations or on-call fires. In the opinion of foreign military specialists, in the desert on this stage of the attack it is expedient to conduct fire to prevent the maneuver of reserves, movement over roads and trails, and movement toward water sources.

It is recommended that enemy counterattacks with reserve forces which may be launched on the direction of the main effort be repelled with a portion of the first-echelon troops from the march or in place. It is considered effective for the destruction of the tanks of the counterattacking side to employ antitank guided rockets and helicopter gunships and direct artillery fire. According to data published in the foreign press, the experience of the Arab-Israeli War of 1973 in the employment of helicopters armed with antitank guided rockets testifies to their broad capabilities and high effectiveness in combating tanks.

When conducting offensive operations in the desert, tactical aviation accomplishes first of all the mission of winning air supremacy which is necessary not only to destroy and neutralize enemy troops and structures, but also to prevent his effect and observation from the air. As a rule, a portion of the aviation resources is detailed for the conduct of aerial reconnaissance and maintaining communication with the troops attacking over disconnected directions.

With the start of the enemy's withdrawal, it is recommended that the attacking troops launch a decisive pursuit (it is conducted over separate directions), not permitting consolidation on individual tactically advantageous lines.

THE DEFENSE. According to the views of foreign military specialists, the defense in the desert has a number of substantial features. It is not continuous, but is organized on a number of combat positions or coordinating strong points which may be at considerable distances from one another. It is believed that not only in the attack, but also in the defense the troops should possess sufficient mobility for rapid concentration and repelling of the enemy attacks and, first of all, on the main direction. In order to execute such maneuvering successfully, it is necessary to be able to organize reconnaissance and security and to establish the direction in which the main grouping of the attacking forces is moving out from give-away signs (dust clouds, exhaust gas).

Under such climate conditions it is recommended that most often a position defense should not be employed. Its shifting forms (mobile or active) with the detailing of considerable personnel and weapons to the reserve should be preferred. The active defense is employed more often to prevent an enemy breakthrough on the main direction.

Its essence is that prior to the start of the attack, when the concept of operations has not been disclosed and the direction of the main effort has not been revealed, the defending troops are disposed in the defensive zone more or less uniformly along the entire front. With the start of the attack (the concept and direction of the main effort have been disclosed), the defenders execute a rapid maneuver and concentrate their efforts on the threatened direction, creating a ratio of personnel and weapons which would permit them to oppose the superior enemy successfully.

It is usually recommended that the main efforts of the troops in the defense be concentrated on the most important directions which lead to the tactical rear area and to economic centers and objectives (big populated places and oases, communication centers, industrial regions and complexes, water sources, and others). The organization of the combat formation must be accomplished with consideration to the possibility of maneuvering mobile reserves along the front and into the depth. The defense should be all-around and echeloned. Sometimes, a single-echelon combat formation is permitted.

On difficult ground, where the moving-out of large enemy forces is less probable, minefields are laid, insignificant covering and reinforcing forces are detailed, and broader zones are designated. The defense has a pocket-of resistance nature with consideration to covering roads, paths, and passages over which the movement of enemy troops is possible. In the gaps between defense areas, where the ground is difficult for offensive operations, security subunits are posted and patrolling is accomplished to a distance of up to four kilometers.

According to data in the foreign press, the width of the defensive zone under desert conditions may be 35-40 kilometers or more for a division, more than 10 kilometers for a brigade, and about 5 for a battalion (battalion tactical group). The division's depth of defense is up to 30 kilometers. Gaps between brigade defense zones are 15-20 kilometers.

If the defense is organized outside of direct contact with the enemy, as a rule, a security zone is established. Its depth depends on the specific situation and may be within limits of 15-20 kilometers.

The primary defense area is usually created to a considerable depth and is echeloned. Its FEBA should run along a line which would provide the defending troops with advantageous conditions for observation, direct fire, the construction of engineer obstacles, and the maneuver of mobile subunits.

The major part of desert terrain is usually accessible to tanks. Therefore, it is recommended that serious attention be devoted to the antitank defense on the most important directions of possible enemy attack to the entire depth of the defensive positions. Here, it is noted that the open nature of the terrain requires the implementation of measures for the camouflage of the troops and defensive structures with consideration of the desert conditions and background.

When organizing the system of fire, use should be made of the advantageous features of the terrain which provide the opportunity to inflict damage by direct fire at maximum ranges. It is necessary that it combine the fire of all weapons (field and antiaircraft artillery, mortars, tanks, antitank weapons, small arms, helicopter

gunships, and tactical aviation), and also ensure support of the covering units and subunits in the security zone and on the limiting points and flanks, the neutralization and destruction of the enemy who has penetrated, and the repelling of his attacks in front of the FEBA.

The extended defensive zones of large units and units which are conducting combat operations in the desert do not permit the creation of zones of continuous destruction, by fire, of all types of weapons present along the entire defensive front. Therefore, fire of maximum density is created only on those directions which are most important and accessible for the attack by large groupings.

In organizing the system of fire the launching of nuclear missile strikes and the employment of chemical and even biological weapons which, in the opinion of foreign specialists, are most effective in desert terrain is envisaged.

Reconnaissance is conducted along the front and into the depth on all directions of the enemy's probable actions. Important significance is attached to ground, aerial, radio, and electronic reconnaissance. Reconnaissance patrols (dismounted, on vehicles, with the use of helicopters) reinforced by sections with antitank and anti-aircraft weapons are sent out to the flanks and to the gaps between defense areas.

Another no less important mission in the defense is reliable protection against the effects of the aerial enemy which, in the opinion of U.S. military experts, is attained by coordinating organizational and attached air defense systems and aviation.

Attention is devoted to the engineer improvement of the defense which, in deserts, requires the conduct of a large volume of earthwork and the employment of special equipment. It is recommended that maneuvering be widely accomplished for the reliable protection of subunits and units, first of all those which are operating independently. When laying mines, the personnel are instructed to use gloves so that no human odor is left on the mines which may attract inhabitants of the desert and thereby cause the detonation of the minefields.

With the start of the enemy attack, it is recommended that strikes be launched by aviation and missiles on the distant approaches to the defense against his armored and mechanized units which are moving out. Great significance is attached to the conduct of battle in the security zone to inflict significant losses on the enemy and disclose the concept of subsequent actions.

In the opinion of foreign military specialists, the attack of the FEBA should be repelled by organized fire of all types. The necessity to strengthen the defense by conducting the maneuvering of troops and fire on the direction of the main effort, for which artillery, tactical aviation, reserves, or subunits taken from unattacked sectors are called upon, is stressed.

Attacking units which have penetrated are destroyed by the fire of the artillery, mortars, antitank weapons, subunits which are holding their positions, and by counterattacks by the reserves.

With the penetration of a superior enemy, when counterattacks by reserve forces are inexpedient, large units and units occupy previously prepared positions in the depth,

inflict destruction by fire from in place, and create conditions for operational reserves approaching from the rear for the counterattack (counterstroke).

With an unfavorable outcome of the defensive battle the troops change over to containment combat actions. In the manuals of the U.S. Ground Forces it is stressed: "The conduct of retrograde operations in the desert is difficult and undesirable. The task consists of not permitting a withdrawal." This shows once again that American troops under desert conditions are trained primarily for the conduct of offensive combat operations.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON U.S. STAND-OFF TARGET ACQUISITION SYSTEM

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 40-42

[Article by Engr-Col V. Dmitriyev: "The American Stand-Off Target Acquisition System"]

[Text] Within the framework of the constantly intensifying arms race in the United States, the command of the American army is continuing to develop more improved means for reconnaissance and troop control which would permit the more effective obtaining of information on the enemy and making it available in almost real time to the commanders of subunits and units in a form suitable for immediate use. As is noted in the foreign press, the creation of such means is furthered by the achievements in contemporary radar technology which ensure the more effective (with high resolution) disclosure of moving ground and low-flying aerial targets against the background of the Earth's surface. In addition, the troops now have communication equipment which permits transmitting with sufficient speed a large volume of information which is suitable for visual display on indicators of the tactical situation and which ensures high noise immunity.

In the opinion of foreign specialists, one of the promising means for reconnaissance which is being developed on order of the command of the U.S. Army from the middle of the 1970's is a helicopter system for tactical reconnaissance and target indication, SOTAS (Stand-off Target Acquisition System). Its primary mission is the detection and distinguishing of moving ground and low-flying aerial targets including tanks and other armored and motor transport vehicles and tractor equipment and low-flying helicopters and tactical aviation aircraft, with the subsequent transmission of these data in a time scale close to real time and in a form suitable for display on the appropriate indicators.

American military specialists include among the merits of this system: the ability to conduct reconnaissance on a large area and beyond the limits of direct-visibility range attainable for existing ground means of reconnaissance as well as in any weather conditions day and night; the capability to follow the displacement of enemy troops; and high efficiency in obtaining reconnaissance information.

The SOTAS system is intended for use in the division element of the U.S. Army. Its operating principle consists of the employment of a special radar which is installed on a helicopter and permits the conduct of reconnaissance in the rear of enemy combat

formations (beyond the FEBA) [forward edge of the battle area] with the helicopter located over friendly territory (Figure 1) [not reproduced]. The reconnaissance data which are obtained using the radar are transmitted through onboard communications equipment to ground-based posts for the control of artillery, army aviation, and subunits and units of the division. In addition, the direct coupling of this system with the TACFIRE field artillery automated fire control system which exists, with promising automated tactical reconnaissance systems, and with new technical means for reconnaissance and reconnaissance-fire complexes (for example, of the PLSS type) is envisioned.

The SOTAS will include: up to four EH-60B reconnaissance helicopters (for the conduct of round-the-clock reconnaissance) with an onboard radar and data transmission equipment, up to six reconnaissance data processing and display stations (including the primary and alternate division command posts [CP] and the CP's of the brigades and division artillery), and means for determining the present coordinates of the EH-60B helicopters which are conducting reconnaissance at a given moment. As reported in the foreign press, the system provides the capability to detect and intersect moving targets at a distance of up to 80 kilometers and to transmit reconnaissance data over a distance of about 75 kilometers.

The EH-60B reconnaissance helicopter is a modification of the multipurpose UH-60A helicopter which has been adapted to accommodate the radar and data transmission equipment. It has a maximum flight speed of about 300 kilometers per hour, a flight range (with a load of 2,700 grams) of 600 kilometers, and a service ceiling of 5,800 meters.

The SOTAS onboard equipment includes a radar, data processing and transmission equipment, and a monitoring indicator (Figure 2) [not reproduced]. Used in the first test models of the system, on which the basic principles of its structure and combat employment were worked out, was the AN/APS-94 side-looking radar which is included in the prescribed equipment of the reconnaissance version of the OV-1 Mohawk airplane. The transceiver and the radar antenna control unit are placed in the cargo compartment of the helicopter while the antenna is located on the outside beneath the fuselage in a rotatable container 580 x 55 centimeters in size. In contrast to the prescribed radar, used in it is only one of the slotted-type antenna arrays which provides scanning (sector 180°) in a direction perpendicular to the helicopter's direction of flight. The antenna is hydraulically stabilized as regards bank, pitch, and yaw angles, which permits controlling it regardless of the evolution and attitude of the helicopter in the air.

For the combat version of the SOTAS system a completely new radar is being developed in which a moving-target selector (MTS) and equipment to reduce the volume of radar information will be used in addition to a new antenna with electronic scanning of the beam which, in the opinion of American specialists, will permit obtaining the required precision in determining the range and azimuth of moving ground and aerial targets which have been disclosed. As reported in the foreign press, this radar will operate in the third band with the capability to retune emission frequency to achieve sufficient resistance to jamming. A special filter will be employed in the digital MTS which is intended for extremely low Doppler frequencies, which will provide the capability to discriminate slowly moving ground targets. In addition, along with the basic method for the conduct of reconnaissance (in the helicopter

hover mode) it is also intended to use its flight for the formation of a pseudo-synthesized antenna aperture which will permit improving the radar's resolution.

Target data obtained using the radar are subjected to processing in the onboard AN/AYK-14 computer which ensures the elimination of information redundancy (a reduction in its volume) and the conversion of data to the form necessary for convenient and rapid processing and display in the ground posts. To transmit data, it is planned to use a complex modular communication system now being developed for use with unmanned flight vehicles as well as in PLSS reconnaissance-fire complexes. This system will ensure the transmission of control commands and various information. In its development, special attention is being devoted to the attainment of extremely high resistance to jamming and secrecy of communication for which, in particular, the method of transmission in a broad spectrum with pseudonoise modulation and a high rate of transmission of large volumes of digital data will be employed.

It is intended to use two types of ground data processing and display stations in the SOTAS system--primary and auxiliary--which will differ from one another only by the amount of equipment. Both stations are disposed in standard containers of the S280 type on five-ton cargo vehicles. Here, the primary station (Figure 3) [not reproduced] is set up on two wheeled vehicles (two radar operator work sites) and the auxiliary station--on one.

The sets of equipment of the data processing and display stations include communication equipment with external antennas for the reception of radar information and the transmission of control commands to subordinate subunits, AN/UYQ-23 tactical situation displays and a computer complex which includes the AN/AYK-14 computer, recorders (memory M640 on magnetic disks and magnetic tape storage), a cartographic plotting board, printer, and digital converters.

The information which reaches the ground station from the radar of the reconnaissance helicopter is processed using the computer and is recorded in the store or in the memory (ZU), from which it is displayed on the tactical situation display on the request of the operator. The display includes a keyboard with controls and a cathode-ray tube with a diameter of 40 centimeters. The possibility of accomplishing the following functions is envisioned in the display: selection of the terrain sector with the disclosed targets for visual display and change in the image scale, determination of target coordinates in the transverse-cylindrical mercator projection, the input of various operational information in sign and symbol form (for example, time of target detection, symbols of identification codes), and plotting target routes and speed of movement. Using digital converters, targets which have been discovered can be plotted on the chart of the plotting board and are also superimposed on the image of a cartographic map of the terrain (on the display). The recording of processed information in the memory on magnetic disks permits the accomplishment of its querying and output on the display at any moment as well as obtaining the dynamics of the change in the tactical situation during specific time intervals. In addition, a printer is used for the constant recording (printout) of reconnaissance information.

To determine the present coordinates of the helicopters which are conducting reconnaissance at a given moment two possible methods for the tie-in of the reconnaissance data to the topographic map in the SOTAS system are being studied. At the first

stages of the system's development it is proposed that the AN/UPQ-4A special ground radar with active interrogation which accomplishes continuous tracking of the helicopter in the air be used for these purposes. Another method which is now being studied is based on the principle of Doppler navigation, where the present coordinates of the helicopter are calculated by the method of dead reckoning with the coordinates of the point of takeoff of the helicopter on a combat mission which are known with a sufficiently high accuracy. With this method, either the employment of ground-based radio beacons or the transmission of range data from the ground processing and display stations to the helicopter are required to correct the calculations.

As of the beginning of 1982, the program for the creation of the SOTAS system is at the stage of engineer development of the basic components. In the second half of the 1970's various tests of the system's experimental model on the base of a UH-1 helicopter were conducted to study the basic concepts of its construction and to determine its combat effectiveness and technical feasibility. In particular, the tests took place during the field exercises of the American 2d Infantry Division in South Korea as well as on the NATO "Reforger-76" and "Reforger-77" exercises in Europe. As was noted in the foreign press, in the course of them such capabilities of the system as obtaining reconnaissance data 0.5-1 hour earlier than with the use of other sources were demonstrated.

It is reported in the foreign press that in connection with the increase in the cost for developing the SOTAS system (this was caused by several technical problems which require expansion of the front for scientific research and experimental design work), the times for realizing the program are constantly being postponed. In 1981, flight tests of the first model of the EH-60B helicopter from a test lot consisting of eight machines and which it is planned to complete in 1982 was begun. Then, in the period of 1982-1985 the initiation of series production of more than 80 helicopters of this type is envisaged. In parallel with this, the development of a helicopter radar and the complex modular communication system and equipment for the ground processing and display posts is being accomplished. The total expenditures on the development of the SOTAS is estimated at 2.5 billion dollars. Altogether, it is planned to manufacture 16 such systems to equip the corresponding number of American ground force divisions with them in the middle of the 1980's.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON NATO AIR-TO-SURFACE MEDIUM RANGE CRUISE MISSILES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 52-55

[Article by Engr-Col V. Kirsanov: "New Air-Launched Cruise Missiles"; passages rendered in all capital letters printed in boldface in source]

[Text] The arms race, each turn of which brings colossal profits to the military-industrial complex, is accompanied by the development of more and more improved, deathly weapons systems which are being created on the basis of the latest achievement of science and technology.

The last decade was marked by the appearance of new missile weapons--air-, sea-, and ground-launched cruise missiles (CM). The beginning of the 1980's, as follows from reports in the foreign press, was marked by the initiation of scientific-research work in the area of creating weapons of one more type--so-called medium range air-to-surface missiles which are combined by the common name MRASM (Medium Range Air-to Surface Missile). By medium range Western specialists mean a firing range of about 600 kilometers which, in their opinion, will permit employing such missiles to launch strikes against various objectives without the carrier aircraft's entry into the zone of action of the enemy's active air defense [AD] weapons. It is noted in the foreign press that increased interest in medium range missiles is manifested not only by the United States, but also by its allies in the aggressive NATO bloc.

THE UNITED STATES OF AMERICA, foreign experts believe, is in the most advantageous position since the General Dynamics Corporation, which began the designing of the MRASM cruise missile in 1980, has the opportunity to make wide use of the experience which it obtained in the course of the development and tests of the air-launched AGM-109 Tomahawk cruise missile (see figure) [not reproduced]. Overall direction of the program for the creation of the MRASM missile, often also called Tomahawk-2, is accomplished jointly by the U.S. Air Force and U.S. Navy. The General Dynamics Corporation is now developing three versions of this missile, two (AGM-109H and AGM-109K) for the Air Force and one (AGM-109I)--for the Navy.

The AGM-109H is intended for arming B-52 bombers and F-16 tactical fighters. It is envisioned that the missile will be used primarily for the destruction of runways (VPP) of airfields, for which it is planned to load its cluster warhead with more than 50 munitions (concrete-piercing bomblets) being developed by the Livermore Research Laboratory in accordance with the order of the U.S. Department of Defense.

With the overflight of the runway by the cruise missile, these bombs will be fired along the normal to the missile's longitudinal axis, and then will descend using a special parachute system. Such a method, according to a statement by American specialists, has a number of advantages. First, it permits reducing to the minimum the altitude of the missile's flight trajectory to the target and, consequently, reducing its vulnerability to ground-based active AD weapons; second, during the descent on parachutes the concrete-piercing bombs approach the runway surface at an angle close to 90 degrees, which substantially increases the degree of damage to its surface. It is planned to equip the missile with the TERCOM correlation system and an optical system for guidance on the terminal flight section, the DIGISMAC, whose high accuracy (circular error probable less than 10 meters), according to its developers' concept, will ensure the missile's confident guidance to the airfield runway.

It is envisaged that the AGM-109K will be used to combat ships or to launch strikes against combat control centers and communications centers. It will have a powerful high-explosive warhead (weight about 450 kilograms) and will be equipped with a television guidance system which, as specialists believe, should increase the accuracy of a target hit. The weight of both versions of the missiles will be 1,320 kilograms and the length of the body will be 5.9 meters.

The AGM-109I is intended for arming American A-6E carrier-based strike aircraft, in connection with which certain restrictions are imposed on the weight and dimensions of the missile. Thus, according to the Navy's requirements its weight is restricted to 1,000 kilograms since with greater values the landing of the aircraft on the deck of the carrier with the use of arresting gear is fraught with the emergence of dangerous situations. With the accomplishment of a forced landing, especially when a missile is suspended beneath one of the wing cantilevers, the possibility of the emergence of dangerous situations increases even more. In addition, the length of the AGM-109I missile body should be no more than 4.87 meters since the dimensions of the cargo elevators of some American carriers do not exceed 4.92 meters. It is planned to install the TERCOM, DIGISMAC, and television guidance systems on the missile in order to employ it for the destruction of airplanes on coastal airfields or for the destruction of their runways. It is also planned to use the AGM-109I to launch strikes against submarine bases, shipyards, combat control centers, and communication centers.

All three versions of the AGM-109 cruise missile will be equipped with CAE J402 turbojet engines of the Teledyne Corporation which ensure a range of fire of no more than 600 kilometers. At the same time, American experts believe that when necessary it will be possible to install on the missile the more improved (with a reduced specific fuel consumption) F107 engine of the Williams Research Company and, through this, increase its firing range to 1,300 kilometers. In the interests of reducing the cost of the missile, simplifying its maintenance, and reducing the time to prepare it for launching, it envisaged that contemporary lasers will be used in the inertial system instead of electromechanical gyroscopes.

According to the calculations of specialists of the General Dynamics Corporation, the arrival of the new medium range cruise missiles may begin in 1985.

In GREAT BRITAIN, a group of specialists of the Air Force Staff has begun the working out of the tactical-technical task for the design of a medium range CM in the

first half of 1981. At the same time, the British firm British Aerospace Dynamics Group has proposed a plan for a cruise missile to the Ministry of Defense which it has worked out on its own initiative and which received the designation P4T. In accordance with it, it is contemplated creating a cruise missile on the basis of the Sea Eagle antiship missile which is now undergoing flight tests. The body of the P4T will be lengthened in comparison with the body of the missile Sea Eagle. As the developers believe, this will permit increasing the fuel reserve and firing range as well as equipping it with a more powerful warhead. The journal AVIATION WEEK AND SPACE TECHNOLOGY wrote that it is planned to install two types of warheads on the P4T: with a powerful charge of regular high explosive (HE)--to destroy bridges, big buildings, and defended objectives or a cluster type--for the destruction of airfield runways or damaging area objectives. Here it is stressed that although the missile's range of fire will depend on the type of warhead, it will not exceed 600 kilometers in any case.

According to reports in the foreign press, the P4T missile will be equipped with the TRI.60 turbojet engine of the French Microturbo Company and the TERPROM (Terrain Profile Matching) guidance system developed by British specialists which is capable of ensuring the flight of the cruise missile at low altitudes while following the terrain relief. This system, similar in many respects to the American TERCOM, has already been undergoing flight tests for a year on airplanes of the British Air Force. Up to now, the type and composition of the equipment for guiding the missile on the terminal section of the flight trajectory has not been finally determined. Nevertheless, as indicated by the foreign press, the Ferranti and Marconi Companies have begun the development of the guidance system along with the British Aerospace Dynamics Group which has certain experience in the creation of infrared systems. It is reported that in the interests of increasing the survivability of the missile the British specialists intend to equip it with special receiving equipment which allegedly will permit determining the places where antiaircraft missile complexes are located and flying around them at a safe distance.

According to estimates of British experts, the mass arrival of cruise missiles in the inventory of the British Air Force and, possibly, of the other NATO countries may begin in 1990.

In the FRG, as the INTERNATIONAL DEFENSE REVIEW reports, the firm of Messerschmitt-Bölkow-Blohm (MBB), whose specialists are planning to develop a new missile on the base of the MW-1 aerial bomb cluster, has begun studies in the field of creating a medium range cruise missile. It is envisioned that the work will be conducted in three stages. On the initial stage, it is planned to reduce the dimensions of the cluster, modify its nose and tail portions, and work out methods for suspension on underwing brackets of various types of aircraft. On the second stage, it is expected to equip the missile with a cruciform tail assembly and a simplified autopilot for the accomplishment of gliding flights to a distance of up to five kilometers. And finally, at the concluding stage the cluster will be equipped with a jet engine. According to reports in the Western press, the accomplishment of this program will permit beginning the deployment of cruise missiles in the units of the West German Air Force in 1990.

The foreign press notes that the work of the MBB firm is causing the increased interest of the command of the West German Air Force which is trying to obtain cruise

missiles to equip the latest Tornado fighter bombers which have already begun to enter the inventory of the line units. The journal INTERNATIONAL DEFENSE REVIEW wrote in this connection that since the West German Air Force is not equipped with long- and medium range air-to-ground missiles, to destroy enemy airfields, command posts, and communication centers the Tornado aircraft will be forced to overcome the powerful air defense of the objectives to reach the target directly and launch bombing strikes. However, assuming that aircraft losses here may reach an unacceptable level, the article's author draws the conclusion: the Luftwaffe has an urgent need for such missiles.

In FRANCE, the Aerospatiale firm has been accomplishing the development of an air-to-ground ASMP supersonic guided missile which is intended for arming the Mirage-4, Mirage-2000, and Super Etandard airplanes.

According to reports in the Western press, an ASMP equipped with a nuclear warhead will have a length of 4.87 meters and a weight of about 1,000 kilograms. A combined power plant consisting of a solid-fuel launch booster and a liquid ramjet sustainer engine, according to the concepts of the developers, will ensure a speed of missile flight of at least Mach = 2.5-3. Ground bench tests began in 1980 and the conduct of test launchings from aircraft is planned for 1982.

To guide the cruise missile to the target, it is planned to use an autonomous system which is being developed in France and which is similar in basic design principles to the American TERCOM. According to the calculations of French specialists, the arrival of the ASMP in the inventory of the French Air Force may begin in 1986. Here, the total cost of developing the missile itself, its electronic systems, and the onboard computer (without considering expenditures for the development of the nuclear warhead) will comprise at least 125 million dollars.

The development and mass deployment of medium range cruise missiles in the armed forces of the NATO countries with conventional as well as nuclear loading will contribute to the further intensification of the arms race and whipping up the atmosphere of hostility and mutual mistrust. All the lovers of dangerous nuclear missile adventures should remember the words of the General Secretary of the CPSU Central Committee, Comrade L. I. Brezhnev, "that dreams of attaining military superiority over the USSR would better be abandoned. If necessary, the Soviet people will find the capabilities to undertake any additional efforts and do everything necessary to ensure the reliable defense of their country."

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON STANDARDIZATION OF USAF RADIOELECTRONIC EQUIPMENT

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 55-58

[Article by G. Luchko: "Standardization of Onboard Radioelectronic Equipment in the U.S. Air Force"]

[Excerpt] Materials pertaining to questions of standardizing radioelectronic equipment (REE) in the U.S. Armed Forces appear periodically in the foreign press. The standardization of weapons and military equipment in general and of radioelectronic equipment in particular is considered by foreign military specialists as an important tool for the further buildup of military might. Factors are noted which speak in its favor, chief of which are facilitating and reducing the cost of material and technical support, servicing, training, and operation.

American experts arrived at the necessity to solve the problem of standardization in the Air Force as a result of the following considerations. More than 90 types and modifications of airplanes are now in operation and there are from 15 to 30 radioelectronic subsystems on board each flight vehicle. In the opinion of specialists, they all have an extremely low level of standardization, as a result of which the onboard subsystem of an aircraft of one type cannot be installed in the free space intended for a similar subsystem on an aircraft of another type. In this case, if the unit approaches in dimensions, the connecting plugs will most likely be different, and so forth.

Such a situation leads, in particular, to where it is impossible to place contemporary radioelectronic equipment on some aircraft of obsolete types since this would require considerable rearrangement of the hook-up wires. According to the statement of foreign experts, the F-16 fighter does not have this shortcoming thanks to the employment of multiplex data transmission devices on it which operate in the mode of their multiplexing and which permit installing new or modernizing existing equipment without rearranging the hook-up wires and cables. The Air Force command also intends to extend this innovation to future airplanes and to use standard radioelectronic equipment but, where possible, with the improvement of obsolete onboard equipment.

Judging from reports in the foreign press, appropriations allocated to the U.S. Air Force for studies and development in the field of radioelectronic equipment as well as for its purchase and modification comprise about 3 billion dollars and approximately the same amount is expended on operation and material-technical support. On

the basis of the results of such an analysis, Air Force experts came to the conclusion that with the attainment of a large degree of standardization radioelectronic equipment which has already been developed will be widely employed and the number of airplanes equipped with equipment which is most improved in its performance characteristics and convenient for technical support will increase. In other words, it is believed more expedient to expend resources on improving the capabilities of radioelectronic equipment than on maintenance during the service period of a great number of obsolete systems with low reliability.

As is noted in the foreign press, Air Force specialists consider an important task to be the introduction of radioelectronic equipment, created on the basis of the latest achievements, as part of the equipment with which the airplane is armed (with expenditures within "reasonable limits") to reduce its technical lag since usually by the time that a radioelectronic system enters the operating stage it contains technology 8-12 years old. Here it is believed that if contemporary airplanes such as the F-16 are reequipped with contemporary equipment developed only a year ago, their combat capabilities will increase sharply. The necessity for such an approach is explained by the fact that the aircraft are now in operation considerably longer than formerly, and even a new airplane which has just come from the production line will require renovation of the onboard radioelectronic equipment during its period of service.

In characterizing the contemporary status of the U.S. Air Force aircraft fleet by its quantitative composition and the time that each of the types of airplanes (helicopters) is in service, the American journal AIR FORCE MAGAZINE presents the following data: of the more than 7,000 aircraft in the inventory of the Regular Air Force 75 percent have been in operation more than 9 years, for the Air National Guard this indicator is 80.1 percent, and for the command of the Air Force Reserve --87.8 percent.

Thus, progress in the area of contemporary radioelectronics which has been observed in recent years ceases to influence in any substantial manner the onboard radioelectronic equipment of obsolete airplanes. As a result, as noted in the foreign press, the operator of a B-52 bomber, for example, is forced to use onboard equipment in which obsolete electronic tube equipment is employed while achievements exist which permit creating the required solid-state devices, microprocessors, and so forth.

According to the statement of American experts, the problem of many types of radioelectronic equipment arose because relatively recently equipment became a characteristic of the airplane. In addition, the onboard radioelectronic equipment was modified rather frequently during the service period. For example, 27 different types of inertial navigational systems alone are now used in the Air Force. In order to correct the existing situation, in 1978 a special directive was issued, "Air Force Policy in the Area of Purchases and Technical Maintenance of Aviation Radioelectronic Equipment," in accordance with which a group for monitoring aviation radioelectronic equipment was created. It is the only organ bearing responsibility for the concentration of all radioelectronic equipment for the Air Force, accomplishing the monitoring of it, and working out recommendations for the creation of new radioelectronic equipment.

Another result of the adoption of the directive was the institution of annual conferences on aerospace radioelectronics. Armaments were also included recently in the range of questions examined at them. The conference assists users, developers, and suppliers of armaments and radioelectronics in decreasing the cost of software, the integration of sensors and weapons, in developing contemporary methods for forecasting technology and possible means for counteraction, and so forth.

As the foreign press stresses, progress in the area of standardization is especially effective where it encounters no obstacles (for example, in the creation of a machine language of a higher order). In particular, it is believed that as a result of the use of this language the software for one airplane can be employed on others. It is noted, however, that resistance to standardization nevertheless exists since not all are interested in it. Thus, users state that standard equipment will not be able to satisfy some special requirements, scientific research organizations believe that standardization will lead to technical stagnation, and contractor firms come out for standardization when their systems are selected as standard. From the viewpoint of the military leadership, only a rise in the combat capabilities of the aircraft serves as the criterion of standardization, and without this it does not support recommendations on standardization. In addition, in its opinion with the conduct of standardization it is necessary to consider the technical level of radioelectronic equipment which is selected as standard and to exclude the possibility of facilitating the enemy's combating the weapons system in which such equipment is used. Thus, according to reports in the Western press, the problem consists of selecting a policy of so-called rational standardization.

Presented below are examples of some work being conducted in the U.S. Air Force on the standardization of onboard radioelectronic equipment.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON U.S. NAVY'S ORGANIZATION AND CAPABILITIES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 59-65

[Article by Capt 1st Rank F. Gavrilov: "U.S. Naval Forces"; passages rendered in all capital letters printed in boldface in source]

[Text] The U.S. Navy occupies a special place in the country's armed forces and is considered one of its most powerful services. Possessing versatility, high mobility, and varied means of destruction it plays a leading role in the realization of the global hegemonistic aspirations of U.S. imperialist circles. In all the wars and armed conflicts in which the United States participated, naval forces exerted a substantial influence on the course of the combat operations as well as on the outcome of the war as a whole.

According to reports in the American press, the U.S. Navy is called upon to win and retain superiority at sea, launch nuclear missile strikes against objectives on the enemy's territory, render support to ground forces on maritime directions, conduct amphibious assault landing operations, ensure the strategic transfer of troops, armaments, and items of material and technical supply by sea, and exert military-political pressure on other states through a show of force.

The Pentagon always attached and attaches special significance to the Navy. Confirmation of this can be provided by the trend toward the increase in their proportion in the country's armed forces during recent years using as an example the increase in budgetary appropriations presented in the table.

ORGANIZATION OF THE NAVY. The highest organ for the control of the Navy is the Department of the Navy headed by a secretary--a civilian who is appointed by the president of the country with the agreement of the Senate for a period of four years. The Secretary of the Navy is directly subordinate to the Secretary of Defense and accomplishes overall direction of mobilization deployment, construction, financing, manning, armament, and logistical support of the Navy. In addition, he is responsible for the organization of scientific research and experimental-design work (NIOKR).

The system of the Department of the Navy includes the directorates and departments of the department itself, the Naval Staff, and the Marine Corps Headquarters.

THE NAVAL STAFF is headed by a chief (in the United States, also called the Chief of Naval Operations) who is subordinate to the Secretary of the Navy. He performs the functions of chief advisor to the President of the country, Secretary of Defense, and Secretary of the Navy on questions of the conduct of war at sea and the organizational development and operational leadership of naval forces. The Chief of Staff is responsible for the development, organization, combat training, and overall combat readiness of the Regular Navy and the Reserve as well as for the working out of principles for their combat employment.

THE MARINE CORPS HEADQUARTERS is headed by a chief subordinate to the Commandant of the Marine Corps who is responsible to the Secretary of the Navy for the organization, combat training, and combat readiness of Marine units and large units, their material and technical support, and administrative control. The Commandant of the Marine Corps is appointed by the President of the country with the agreement of the Senate for four years.

The Navy is subdivided into the fleet, naval aviation, and the Marines. In turn, naval aviation consists of fleet aviation (carrier and shore-based) and Marine aviation. As is stressed in the Western press, both in peacetime and in wartime they have two parallel existing forms of organization: administrative and operational.

Distribution of Appropriations for the U.S. Department of Defense by
Services of the Armed Forces (billion dollars)

Services of the Armed Forces	Fiscal Years					
	1976/77	1977/78	1978/79	1980	1981 (estimate)	1982 (plan)
Navy	36.5	39.6	41.8	47.1	57.8	70.7
Air Force	31.6	33.1	34.9	41.7	53.2	67.1
Ground Forces	26.7	29.0	41.8	34.6	43.6	52.8
Directorates and Departments of Department of Defense	13.5	14.8	16.6	18.8	23.4	31.6
Total	108.3	116.5	124.8	142.2	178.0	222.2

ADMINISTRATIVE ORGANIZATION envisages the formation of uniform large commands and forces by classes of ships and combat arms, their basing, combat training, manning, logistical support, and repairs. In accordance with it, the American Navy includes: the Atlantic and Pacific Fleets, naval districts, Military Sealift Command, Naval Reserve, test, minesweeping, and oceanographic forces and, in wartime, the Coast Guard.

In principle, the Atlantic and Pacific Fleets have the same organizational structure. At their head stand the commanders-in-chief who are directly subordinate to the Navy

chief of staff. The composition of the fleets includes the following large commands of uniform forces: submarine, aerial, surface, and Marine. In addition, both contain training commands and, the Pacific Fleet--a rear services command.

Submarine forces include nuclear missile, nuclear, and diesel submarines brought together in squadrons and groups.

The air forces contain uniform forces and units of carrier and shore-based aviation (air wings of medium strike aircraft, light strike aircraft, fighters, antisubmarine and land-based patrol aircraft, DRLO [long-range radar spotting] aircraft, antisubmarine helicopters, and others), eight groups of multipurpose aircraft carriers (of one to three ships each), and also fleet air commands in individual regions of the world.

Surface forces include six cruiser-torpedo boat groups (three in each fleet) and two amphibious groups (one each), two groups of service vessels (one each), and mine-sweeper squadrons (one each). In turn, the groups consist of squadrons.

The Fleet Marine Forces are represented by three Marine divisions (one in the Atlantic Fleet and two in the Pacific Fleet), three air wings (one and two respectively), three rear services groups (one and two), and reinforcing units and sub-units.

The naval districts (seven) are intended for the conduct of mobilization measures in the interests of the Navy, providing basing and rear services supply, the organization of coastal defense, and the protection of communications in coastal waters.*

The Military Sealift Command provides the sea lifting of personnel and other cargoes of all services of the U.S. Armed Forces, works out and realizes plans for the increase in the number of vessels with the emergence of a state of emergency through the country's merchant fleet, and allocates the appropriate vessels for the accomplishment of scientific research and experimental design work conducted in the interests of the Pentagon in the field of oceanography, studies of outer space, and weapons tests. In addition, it charters merchant ships.

The Naval Reserve Command handles questions of the manning and training of the reserves of the fleet, fleet aviation, Marines, and their aviation.

The Naval Test Forces Command supports tests of experimental models of ships, airplanes, weapons, and technical equipment as well as of those already accepted into the inventory.

The Naval Training Command is responsible for the training of personnel, the preparation of combat training programs, and direction of the activity of naval educational institutions and various centers and points for the training of the personnel.

* According to the latest reports in the American press, the Navy command intends to disband the naval districts, transferring their functions to the naval bases.

The Minesweeping Command is responsible for the status and combat readiness of the minesweeping forces and the elaboration of plans for the use of mine weapons and antimine equipment in the fleet.

The Oceanographic Command conducts oceanographic studies and weather observations in the interests of supporting the Navy's combat and daily activity.

In peacetime, the Coast Guard is under the jurisdiction of the Department of Transportation, and in case of war or under conditions of a state of emergency is re-subordinated to the Chief of Staff of the Navy by special decision of the President.

The OPERATIONAL ORGANIZATION presumes the organizational structure of the Navy as part of unified commands of the U.S. Armed Forces in zones (of the Atlantic Ocean, European, Pacific Ocean, Central and South America), their deployment in the main theaters of operations, and the conduct of combat and operational training of mixed forces with their accomplishment of various missions in peacetime and wartime. The first three unified commands permanently include operational formations of naval forces--high commands. As regards the unified command of U.S. Armed Forces in the zone of Central and South America, the Navy (just as the Air Force) is not a part of it in peacetime. The headquarters of the U.S. Naval Command in the zone was disbanded in 1979. In emergency situations ships and units from the U.S. Naval Command in the Caribbean Sea may be transferred to the operational subordination of the commander of the armed forces in the zone.

The operational fleet includes forces of all naval arms and is intended for the accomplishment of operational-tactical missions in coordination with the other armed services in the zone as well as independently. Its composition may include the following forces: aircraft carrier, amphibious, antisubmarine warfare, and submarine forces, Marines, service forces, land-based patrol aviation, and others. These forces are subdivided into groups, detachments, and elements.

Now, as noted in the foreign press, there are four operational fleets (2d, 3d, 6th and 7th). The 2d Fleet is intended for operations in the zone of the Atlantic Ocean, the 6th--in the Mediterranean Sea, and the 3d and 7th--respectively in the eastern and western parts of the Pacific Ocean. In addition, the Pentagon intends to create one more operational fleet based on the grouping of the U.S. Navy in the Indian Ocean--the 5th. "Its zone of responsibility" will encompass the space of the Indian Ocean.

The operational fleets do not have a permanent ship composition. They are made up through combat-ready ships, naval air units, and Marines of the Atlantic and Pacific Fleets which are transferred to the operational fleets for six to eight months.

In its operational organization, Naval Aviation presumes the formation of carrier-based air wings as well as units and subunits of land-based patrol aviation from the uniform forces created in accordance with the administrative organization.

In accordance with the operational organization, the basic formation of the Marines which is intended for participation in big amphibious assault operations is considered to be the expeditionary division which includes: a division, reinforcing units, rear services support group, and air wing. Its strength is more than 43,000 men.

For the conduct of an operation on a smaller scale, an expeditionary brigade may be formed consisting of a Marine regiment, reinforcing and service subunits, a mixed air group (it includes attack aircraft, fighters, transportation-assault helicopters, and helicopter gunships), and air defense subunits. The brigade numbers up to 16,000 men.

The basic Marine tactical formation is the expeditionary battalion which consists of a battalion, reinforcing and service subunits, and a mixed squadron of transportation-assault helicopters and helicopter gunships. Its strength is about 2,500 men.

THE COMBAT COMPOSITION OF THE NAVY. The U.S. Navy is the biggest and, as Western military specialists stress, the most modern and combat-effective in the capitalist world. It contains ships of all classes, including SSBN's [nuclear ballistic missile submarines] (one of the components of the country's strategic offensive forces which contains 55 percent of the nuclear warheads in the strategic arsenal of the United States), aircraft carriers (the strike force of the fleet at sea in wars with the employment of conventional means of destruction and the reserve of strategic forces in a nuclear war), nuclear and diesel submarines, cruisers, destroyers, frigates, amphibious assault and minesweeping ships, and boats. They are equipped with ballistic missiles (Trident-1, Poseidon, Polaris), antiship (Harpoon), surface-to-air (Terrier, Tartar, Talos, Sea Sparrow, Aegis), and antisubmarine warfare [ASW] missile complexes (ASROC and SUBROC), gun mounts of various calibers, torpedoes, and mines. The Tomahawk cruise missile, which is expected to be used from surface ships as well as from submarines, is in the testing stage.

According to data in the foreign press, at the start of this year the Navy includes 40 nuclear missile,* 80 nuclear and 5 diesel torpedo submarines, 13 aircraft carriers, (of them 3 nuclear), 27 guided missile (GM) cruisers (9 nuclear), 41 GM destroyers, 52 destroyers (including 9 in the special reserve), 21 GM frigates, 59 frigates (4 in the special reserve), 65 landing ships (6 in the special reserve) and 25 minesweepers (22 in the special reserve), 3 guided missile and 3 patrol boats, 2 command ships, about 90 auxiliary vessels (8 in the special reserve), more than 70 vessels of the Military Sealift Command (MSC), and more than 1,100 various base craft. The Naval Reserve had 104 combat ships, boats, and auxiliary vessels; of them 55 were in mothballs (2 nuclear missile, 2 nuclear, and 1 diesel submarines, 5 aircraft carriers, 4 battleships, 2 each GM cruisers, cruisers, and patrol boats, 3 tank-landing ships, an attack cargo ship, 18 auxiliary vessels, and 13 of MSC) and 49 (listed above)--in the special reserve. In addition, in wartime more than 250 destroyer escorts, boats, and auxiliary vessels of the Coast Guard are transferred to the fleet.

In various stages of construction are 8 nuclear missile submarines (of the "Ohio" type) and 19 torpedo submarines ("Los Angeles"), 3 nuclear carriers ("Chester W. Nimitz"), 3 GM cruisers ("Ticonderoga"), a destroyer ("Spruance"), 27 GM frigates ("Oliver H. Perry"), and 3 guided missile hydrofoils ("Pegasus").

* Some foreign authors believe that the U.S. fleet has 37 nuclear missile submarines because the American naval command recently announced the reclassification of the three SSBN's of the "George Washington" type left in formation as torpedo submarines (earlier, two submarines of this type were retired to the reserve).--Editor

As evidenced in the Western press, naval aviation numbers approximately 2,700 combat airplanes and helicopters including about 1,300 carrier aircraft and more than 250 land-based airplanes as well as more than 1,100 Marine aviation airplanes and helicopters. Carrier aviation included the A-6A and A-7E Corsair-2 medium and light attack aircraft, the Tomcat F-14A and F-4J Phantom-2 fighters, long-range radar-spotting and electronic warfare [EW] airplanes, the E-2C Hawkeye and EA-6B Prowler, RF-8G Crusader reconnaissance airplanes, the S-3A Viking ASW airplanes, the SH-3H Sea King ASW helicopters, and SH-2F light multipurpose helicopters of the Lamps ASW system. Land-based aviation was represented by P-3C Orion patrol airplanes and the EA-3B Sky Warrior and EP-3E Orion radio- and electronic reconnaissance airplanes. Marine aviation had the A-6E Intruder and A-4M Skyhawk medium and light attack aircraft, AV-8A Harrier vertical or short takeoff and landing airplanes, F-4J Phantom-2 fighters, RF-4B Phantom-2 reconnaissance airplanes, EA-6B Prowler EW airplanes, OV-10 Bronco reconnaissance and spotting airplanes, CH-53 Sea Stallion, CH-53E Super Sea Stallion, and CH-46 Sea Knight transport-assault helicopters, AH-1G Huey Cobra and AH-1E Sea Cobra helicopter gunships, and UH-1E Iroquois reconnaissance and spotting helicopters, as well as the Hawk and Redeye surface-to-air missiles.

As the American press reports, the Marine ground forces are armed with about 600 M60A1 tanks, about 1,000 LVTP-7 amphibious assault vehicles, almost 300 field artillery pieces (203.2-, 155-, and 105-mm howitzers, 175-mm guns), more than half of which can use nuclear ammunition, 81- and 60-mm mortars, the Dragon and TOW anti-tank guided missiles, grenade launchers, and small arms.

The personnel strength of the Navy is 716,100 men, of them 188,100 Marines.

PROSPECTS FOR DEVELOPMENT OF THE NAVY. Increasingly fanning the myth of a "Soviet military threat," the ruling circles of the United States have initiated an arms race which is unprecedented in scales. In the system of military preparations, the most fixed attention is devoted to the development of the Navy, an increase in the rates of construction of combat ships and auxiliary vessels, and the quality improvement of the armaments of the fleet, naval aviation, and the Marines.

Lauding to the skies the Pentagon's new strategy, the Navy command has put forth a long-term program for the development of the Navy which envisions bringing the total number of ships to 600 units.

In the accomplishment of this program, a significant role is allotted to modernization of sea-based strategic missile forces. According to reports in the foreign press, the construction of nuclear missile submarines of the Trident system is continuing. The lead SSBN 725 "Ohio" was turned over to the fleet in October 1981 and its departure on combat patrol is planned for 1982. The rearming of 12 submarines of the "Lafayette" type (Figure 1) [not reproduced] should be completed this year: the Trident-1 is being installed on them instead of the Poseidon missiles. The range of fire of the former (7,400 kilometers) exceeds the range of fire of Poseidon 1.7-fold which, as noted in the foreign press, permits expanding the patrol zone of nuclear missile submarines right up to the coast of the United States and, thereby, increasing the combat stability of the sea-based missile system as a whole. At the end of the 1980's, the Trident-2 missile with a range of more than 11,000 kilometers is to enter the inventory of SSBN's of the "Ohio" type.

A program is being implemented for the construction of nuclear torpedo submarines of the "Los Angeles" type (they should number about 40 units by 1990) which, in the opinion of American military specialists, possess higher combat capabilities. As evidenced in the foreign press, by 1985 the United States intends to have altogether 90 nuclear submarines, and by 1990--100.

Considering aircraft carriers (Figure 2) [not reproduced] the most powerful and universal component of the general-purpose Navy, the Pentagon expects to bring their number in the Regular Navy to 15 units and to maintain them at such a level. For this purpose, programs are being accomplished in the Navy to prolong the service period of carriers from 30 to 45 years and for construction of three nuclear aircraft carriers (transfer to the fleet is planned for 1982, 1988, and 1990), and the possibility of demothballing and the commissioning of two obsolete ships of this class after modernization is being considered and its expediency studied. In addition, in order to ensure the constant presence of the planned number of carriers as part of groupings in the main naval theaters in the Atlantic, Mediterranean Sea, in the western part of the Pacific Ocean, and in the Indian Ocean, the U.S. Naval Command expects to supplement the fleet with medium carriers of a new design which, despite the smaller dimensions and reduced combat capabilities, will be able to accomplish their assigned missions in so-called "secondary" regions of the world.

Construction of new GM cruisers of the "Ticonderoga" type equipped with Aegis surface-to-air missile complexes, destroyers, and GM frigates is being conducted. By the middle of the 1990's, it is planned to have as part of the U.S. Navy up to 30 GM cruisers of the "Ticonderoga" type (on the average, two per carrier group) and 37 destroyers of the "Spruance" type. At the end of the 1980's, modernization of 10 GM destroyers of the "Charles F. Adams" type will be completed and 55 GM frigates of the "Oliver H. Perry" type will also be commissioned (Figure 3) [not reproduced]. It is envisaged that construction will begin on four nuclear GM cruisers (earlier, their construction was postponed due to high cost) and on DDGX GM destroyers of a new type (they will replace GM destroyers whose service period expires at the beginning of the 1990's).

To increase the capabilities for rendering fire support of Marine operations, the Pentagon adopted the decision to demothball and modernize battleships of the "Iowa" type. As stressed in the Western press, Tomahawk cruise missiles will be installed on them. Initially, it is intended to conduct work on two ships (BB61 "Iowa" and BB62 "New Jersey"). It is planned that they will be commissioned in 1983 and 1985.

The Naval Command is equipping ships and nuclear submarines with Harpoon antiship missiles (ASM), the number of which it plans to bring to 3,000 by the end of the 1980's. Tests of the Tomahawk cruise missiles (CM) are being conducted. It is believed that the arrival of this weapon on the ships and the ASM will give them the capability to launch strikes against shore objectives. As is noted in the American press, at the beginning of the 1990's the U.S. Navy plans to have up to 4,000 Tomahawk cruise missiles.

The development of auxiliary vessels in the 1980's, in the opinion of foreign specialists, will proceed along the path of the further standardization and construction of vessels for the combined supplying with all types of

logistical support. The arrival of about 70 new vessels in the fleet is expected, and obsolete ships will be inactivated for mothballing.

It is planned to accomplish the qualitative renovation of naval aviation during this period by taking into the inventory the A-18A Hornet attack aircraft, the AV-8B Harrier with vertical or short takeoff and landing (they will replace the light carrier-based attack aircraft A-7A Corsair-2 and the Marine attack aircraft A-4M Skyhawk), and the F-18A Hornet fighter (in place of the F-4J Phantom-2). The medium A-6E Intruder attack aircraft will be retained until the middle of the 1990's, and the carrier-based F-14A Tomcat fighter--until the beginning of the new century. To expand the versions of combat employment and improve the combat capabilities of the carrier-based attack aircraft A-6E Intruder and A-7E Corsair-2 and the ASW aircraft S-3A Viking and P-3C Orion, they are being rearmed with the Harpoon ASM which, in the opinion of foreign specialists, will provide a five-fold expansion of the zone of destruction of surface targets.

In the 1980's, regular Marine units will receive the contemporary M1 Abrams tank in place of the M60A1 tanks, and it is also expected to complete the replacement of obsolete 105-mm howitzers with new 155-mm howitzers. As a result of this, all Marine field artillery will receive the capability to conduct fire with nuclear rounds and its firepower when firing conventional shells will increase by 20 percent.

To increase the effectiveness of operations in landing Marine assault forces, assault-landing equipment is being improved and new landing ships are being constructed which will replace obsolete ones at the end of the 1980's. Special air-cushion craft have been developed which permit lifting an assault force from ships into the depth of the coast at high speed. They will provide the capability, as noted in the foreign press, to accomplish the landing of an assault force on four times more sections of the coast in comparison with regular assault-landing equipment.

To increase the mobility and duration of support for Marine combat operations, in 1982 it is planned to increase the strength of the group of vessels in the "Rapid Deployment Force"--of floating depots of heavy weapons and combat equipment in the Indian Ocean from 7 to 13 units. Prior to 1987 it is planned to build 14 vessels--floating depots of a special design on which heavy armaments and reserves of material and technical equipment should be placed for the conduct of combat operations of three Marine expeditionary brigades. It is expected that the personnel of these brigades with light armament will be lifted to the conflict area by airplanes of military transport aviation.

According to data in the Western press, in the next 10 years the capabilities of the vessel inventory of the Military Sealift Command for the lifting of troops and cargoes will increase 4-fold. The construction of special barge-carrier vessels capable of delivering combat equipment and various cargoes to unimproved coasts will continue. Funds have been allocated to purchase eight high-speed container carriers which will be reequipped for the shipment of a mechanized division of ground forces. It is planned to keep the vessels in five-day readiness for loading. To lift troops and cargoes from the continental part of the United States (in the interests of supporting prolonged combat operations of ground forces in theaters of operations across the ocean), the use of about 1,000 vessels from the national defense reserve fleet, the U.S. Merchant Marine, and fleets of NATO member countries is envisaged.

In the opinion of the U.S. Naval Command, all these measures will further the situation where the Navy, which even now is an important means for realization of the aggressive designs of the country's imperialist circles, will acquire even greater universality, mobility, and combat power in the immediate future.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON FLIGHT SUPPORT EQUIPMENT OF U.S. AIRCRAFT CARRIERS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) pp 66-70

[Article by Col M. Panin: "Technical Flight Support Means on Aircraft Carriers"; passages rendered in all capital letters printed in boldface in source]

[Text] The contemporary aircraft carrier is a big floating airfield with all necessary means to support the combat operations of carrier-based aircraft. From 80 to 100 airplanes and helicopters can be based on it. The takeoff and landing of comparatively heavy jet aircraft on carriers (except for vertical- or short takeoff and landing airplanes) are possible only with the use of special devices--catapults and arresting gear. Radiotechnical flight support equipment helps the pilots to find the ship at sea and accomplish an accurate calculation and landing on its deck. And finally, the movement of a large number of airplanes on the ship (in the hangar and on the flight deck), the loading and removal of armaments, and ensuring fire safety require a significant quantity of auxiliary technical equipment.

The basic equipment is: catapults, deflectors of aircraft engine jet streams, arresting gear and emergency barrier, the illumination system and automatic landing system, television landing monitoring system, fire-fighting equipment, and various mobile support equipment.

CATAPULT. According to data in the American press, contemporary carriers of the U.S. Navy are equipped with two to four steam catapults. The contemporary catapult with a track length of 94.5 meters is capable of accelerating an airplane, for example, an F-14A Tomcat (weight 33 tons), to a speed of 247 kilometers per hour in 2-2.5 seconds.

The catapult is a device which consists of two cylinders arranged in parallel with pistons which are fastened to one another by a connecting element with a so-called shuttle (Figure 1) [not reproduced]. Steam at a pressure of up to 80 kilograms per square centimeter acts on both pistons (weight of each 2,722 kilograms, diameter 46 centimeters), driving them within the cylinders located beneath the flight deck. The cylinders are covered by two removable sections of the deck plating which have a groove in which the shuttle which has been mentioned moves. Its upper part is located above the flight deck and a tow line or the front landing-gear leg of the airplane is fastened directly to it.

The cylinders are assembled from sections (3.6 meters in length) which are fastened by bolts and made of high-quality stainless steel. The groove along the entire length of the cylinder walls for the free passage of the connecting element of the two pistons is hermetically sealed by a special flexible strip which is firmly retained from below by springs. With the passage of the pistons, the strip is pressed out downward by a special cam, again closing the groove after the passage of the pistons and not letting the steam escape to the outside.

The massive shuttle, which is connected with the pistons, has free running along the catapult track, at the end of which they are braked on a section of 1.5 meters by a hydraulic brake device which is a cone-shaped plunger. Beneath the deck it is fastened to the connecting element of the pistons and, at the end of their travel it enters a special cylinder filled with water. As a result of the compression and displacement of the water through a shaped opening in the plunger, all moving elements are braked to a complete stop.

Both working cylinders and the braking device of the catapult are located beneath the flight deck in a special trough 1.2 x 1.3 meters in size. Steam is generated in steam boilers of the aircraft carrier and goes to a steam drum through a system of steam pipes with a diameter of 20 centimeters.

Before takeoff, the airplane stands on the catapult, is centered on it, and is fastened to it by a bridle made from a steel cable. To prevent the premature movement of the airplane under the influence of the thrust of its own engines, it is fastened to a so-called sole plate on the flight deck with the aid of a calibrated ring which splits with the start of movement of the catapult shuttle. The catapult's energy can be regulated depending on the takeoff weight of the airplane, necessary final speed, and other takeoff conditions. The final acceleration speed, which depends on restrictions on the strength of the airplane's structural elements and permissible g-forces for the flight personnel, should equal the minimum unstick speed for the given airplane and, for purposes of safety, should even exceed it by 10-15 percent.

After the airplane's takeoff using the catapult, its shuttle returns to its initial position. For this, a device is used which consists of a clamp put into motion by means of a compound-pulley system.

JET STREAM REFLECTORS. After the airplane is placed on the catapult, the jet stream reflectors rise behind it. These are panels of aluminum alloy (width 10.8 meters, height 4.2 meters) which are cooled by sea water and which withstand a temperature of more than 1260°C (see colored insert) [not reproduced]. The deflection of the jet stream is necessary so that there is no compressor surge or unintentional stopping of the engine of the airplane standing behind or cases of destruction of the antenna cowlings of airplanes awaiting their turn for placement on the catapult. In addition, this is done to prevent the the ignition of explosives or the motors of solid-fuel rockets standing at the rear of the airplanes and to protect personnel on the flight deck.

Water-cooled panels are disposed in the deck in front of the jet stream reflectors, which ensures normal temperature when people are working in the area of the catapult.

The **ARRESTING GEAR** is the basic means for braking the airplanes on the deck during landing. It consists of steel cables (diameter 35 millimeters, length up to 36

meters) which are stretched across the landing strip of the flight deck in the area where the airplanes touch down on it.

Each aircraft carrier has four such cables which are raised to a height of 10-15 centimeters above the deck. They are connected by couplings with underdeck cables about 600 meters long and, through a system of sheaves, take off downward where the engines of the arresting gears and hydraulic shock absorbers are located. Motors wind the cables onto drums, creating the required tension depending on the airplane's landing weight and speed.

During landing, the hook of the airplane catches one of the arresting gear cables (Figure 2) [not reproduced]. The cable is extended, unreeling from the drum which has a variable diameter and is connected with a hydraulic braking device. The arresting gear brakes the aircraft smoothly on a landing-run section with a length of 90 meters in 2.5-3 seconds. Here the g-forces do not exceed 5. A special post is provided for the control of the arresting gear from whose control panel the operator can regulate the amount of tension of the cables which is necessary to brake airplanes with a landing weight of up to 24 tons and a speed of up to 250 kilometers per hour. Arresting gears with an improved design are now being installed on aircraft carriers.

By the moment that the airplane stops, the cable is extended almost to its entire length. After the hook is released from the cable, the airplane taxis to a safe section of the flight deck, and the arresting gear cable is prepared to receive other airplanes.

The EMERGENCY BARRIER is used during landings in emergency situations. It is a nylon net which is fastened between two supports which have a drive for rapid lifting and blocking on the deck. The net consists of upper and lower strops between which are stretched vertical bands which arrest the airplane by the leading edges of the wings (Figure 4) [not reproduced]. The height of the barrier is such that the upper horizontal strop passes above the canopy of the pilot's cockpit, and the lower --at the level of the landing gear legs. During the landing on the barrier the g-forces will be somewhat greater than during a normal landing; however, the airplane receives only insignificant damage. The time expended on disconnecting the barrier from the airplane exceeds the time necessary to disconnect the landing hook with the cable of the arresting gear. The setting and gathering as well as the freeing of the airplane from the net disrupt the normal rhythm of the landing process.

The ILLUMINATION SYSTEM assists in the landing of an airplane on the deck under simple weather conditions. It is installed on a stabilized platform which is offset beyond the limits of the carrier's side. The system's optical unit consists of five lens cells arranged one above the other.* Each one emits a light beam in an azimuthal plane at an angle of 40° and in the vertical plane--of 1.5° , in which regard the three middle cells provide a yellow light (along the glide path at an angle of $3.5-4^\circ$), the upper--a constant white light, and the lower--a red flashing light. Located along both sides of the middle cell are horizontal flashing green lights which

* For greater detail, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE No 3, 1979, pp 60-61.-- Editor.

permit landing (two each) and vertical red prohibition lights (five each). Six constant green lights, so-called reference lights, are arranged to the right and to the left of the latter on the same level with the central cell of the optical unit. When the airplane enters the beam of the glide path during the landing approach, the pilot sees the yellow and green reference lights at the same level. Keeping them at the same level (Figure 5) [not reproduced] permits executing a precision landing on the carrier (the third cable of the arresting gear will be caught). The range of visibility of the lights at various times of the day is 1.4-4 kilometers.

USING THE AUTOMATIC LANDING SYSTEM under difficult weather conditions the approach and landing of the airplane are accomplished in the automatic mode (with a range of 8-14 kilometers) as well as in the semiautomatic mode (piloting using the system's display) and manual mode (according to the commands of the landing radar operator).

It consists of ship and airplane equipment. The ship equipment includes the AN/SPN-10 and -42 landing radars, devices for stabilization and compensation (for bank, trim, vertical displacement, and yaw of the deck), navigation computers, data transmission equipment, control panels, and radar displays.

The aircraft equipment includes the AN/ASW-25A receiver, autopilot, automatic flight controller, and pilot's display. The receiver receives a signal from the ship's equipment which provides automatic control of the ailerons, elevator and rudder, and other aerodynamic surfaces and, in addition, its engine thrust during the landing approach.

Data on the airplane which arrive from the AN/SPN-42 radar, carrier-deck motion compensators, and from the hydraulic sensors and accelerometers are processed on the navigation computer. It determines the amount of the aircraft's linear deviation from the assigned landing path and, through a transmitter, issues commands on bank and pitch to the autopilot and the pilot's display. Control commands are transmitted through the NTDS-AIDS combat information-control system.

First, the airplane makes its landing approach using the TACAN navigation system in accordance with the commands of the radar operator or from the display (semiautomatic mode). The system has a device to compensate for the deck's displacement. Compensation signals begin to arrive at the airplane 12.5 seconds prior to the landing. Approximately 500-600 meters from the point of touchdown the airplane's flight begins to be synchronized with the motion of the ship's deck. Such compensation is impossible during a manual landing because of the pilot's relatively slow reaction. American specialists believe that it is difficult to determine the direction of displacement and rate of movement of the deck in good time and precisely from the airplane cockpit. Therefore, automatic landing in difficult weather conditions is safer.

The TELEVISION MONITORING SYSTEM, which ensures the airplanes' landing safety, consists of four television cameras located in various points on the carrier. They transmit an image to a control post where an operator records the necessary information in a video tape recorder and distributes it among various receivers on the ship.

The basis of the system is a modified standard television camera which is installed beneath the angled flight deck exactly along the axial line at a distance of 90

meters from the last (fourth) cable of the arresting gear. The objective lens is mounted on a periscope base and projects a little above the deck, which permits observing the entire deck surface. It is covered by a steel lid against possible damage by the wheels of the airplane landing gear. A cutout in the steel lid provides the necessary field of view. The crosshair which is drawn on the prism of the periscope is oriented along the assigned glide path. The entire device is mounted on shock absorbers, which excludes the effect of the ship's vibration on the image. A second similar television camera is a backup. The third is installed in the landing control post and is constantly directed at the instrument panel on which the following information is contained: date, time, wind velocity above the deck, and the speed of the airplane coming in for a landing. The images from both cameras are combined in one frame in such a way that the necessary data which characterize the airplane's landing are depicted simultaneously with its image at this moment.

A fourth television camera is installed on the bridge of the island superstructure and is controlled manually by the operator. The moment of touchdown on the deck during the landing, the catching of the cable of the arresting gear by the landing hook, the stopping, and the taxiing of the airplane to the safety line are mandatory for photography. This camera permits showing any occurrence on the upper deck in a large scale.

The video tape recorder operates on a magnetic tape with a width of 50.8 millimeters which is wound on reels intended for 1.5 hours of recording. Conversations between the pilot and the landing control officer as well as the commands of the flight operations officer and the dispatchers of the air traffic control center are recorded on one of two channels. The other channel is used for comments during critiques of flights.

In the opinion of foreign specialists, such a system facilitates considerably the critique of flights since all landings accomplished on the carrier deck are recorded on a video tape recorder. The recording can also be accomplished at night thanks to special illumination on the upper deck. Each pilot has the opportunity to see and evaluate his own landing approach as well as the landings of other pilots and to analyze radio traffic with the flight controllers. The officer who is controlling the landing has his own monitoring screen which permits him to check at any moment the correctness of the commands issued by him for the correction of errors and to follow the precision of their execution. One of the advantages of the system is the possibility of an objective analysis of flying accidents.

According to reports in the American press, with the reception of an all-weather automatic system in the inventory of all carriers the probability of the landing of the airplanes with the first approach has increased to 80 percent.

FIRE-FIGHTING EQUIPMENT includes a fire truck, self-propelled crane, fire hoses which encompass the entire flight deck with considerable overlap, and aircraft and ship fire extinguishers. The MB-1 vehicle for extinguishing fires (weight 14 tons) accommodates 3,780 liters of regular water and 500 liters of "light" water. Monitors spray the components within a radius of 45 meters. According to data in the American press, spilled burning fuel weighing 11 tons can be extinguished in approximately 4 minutes. Also on aircraft carriers is the P-4A fire truck with two turret guns which are intended for the spreading of the flame damper. One of them (it operates

manually) feeds the fluid with a delivery of 3,000 liters per minute, and the second (with remote control)--1,100 liters per minute. The delivery of the fire hoses is 300 liters per minute. The tank of the P-4A vehicle can be connected to the ship's fire main.

The self-propelled hoisting crane, which has a spray nozzle for extinguishing a fire on the end of the beam, pushes burning airplanes overboard. It is controlled by one driver from the cab or remotely from a distance of 15 meters.

Carrier flight decks are equipped with sprayers which are located along the sides and in the deck for fighting fires.

In addition to airplanes and helicopters, a large quantity of MOBILE SUPPORT EQUIPMENT is constantly located on the deck. Thus, on the carrier there are a self-propelled hoisting crane (lifting capacity about 25 tons), 20-25 airplane tow vehicles, up to 10 mobile compressors, 10 hydraulic winches, 10-12 self-propelled fork lifts, 9-11 trailers with liquid oxygen, 16 heavy trailers which transport engines and tail sections of airplanes for repair, dc and ac gas-turbine generators, self-propelled and transportable air starters, jacks, air conditioners, tow bars, brake shoes, and mooring chains.

In the opinion of the U.S. Naval Command, the support of flights on aircraft carriers is a rather complex process on which the accomplishment of the combat mission depends completely. Therefore, now the question of the further improvement of technical equipment which supports the takeoff and landing of aircraft with the required cycle of operations is acquiring special acuteness.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON JOURNAL FROM TRANSCAUCASUS M.D. READERS' CONFERENCE

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 4, Apr 82 (signed to press 9 Apr 82) p 80

[Article: "Meetings With Men of the Red Banner Transcaucasus Military District"]

[Text] Representatives of the editorial staff of the Order of the Red Star journal ZARUBEZHNOYE VOYENNOYE OBOZRENIYE met in the first half of March 1982 with men of some of the formations and large units of the Red Banner Transcaucasus Military District. At readers' conferences and meetings which had a businesslike, specific nature, they told about the work of the editorial board and the collective of the editorial staff, reported on subsequent plans, and answered readers' questions.

The participants in the conferences and meetings noted that the journal enjoys great popularity among the men of the district. In their opinion, it contributes to an expansion of the servicemen's horizon and renders substantial assistance in the indoctrination of the personnel and the study of the armed forces of foreign states. Its materials are widely used in commanders' training, for the preparation of talks and lectures, and for equipping training classrooms. The comrades who spoke expressed satisfaction with the quality and forms for the presentation of the published materials and evaluated a number of articles highly.

In characterizing the work of the editorial staff favorably on the whole, at the same time the readers called attention to several shortcomings and expressed a number of desires and suggestions. For example, they believe that more attention should be devoted to the military-political situation in individual regions of the world, the armed forces of some countries, the organization, equipping, and tactics of small-unit operations, and questions of the conduct of combat operations in mountain and mountain-desert terrain, control and communications, rear services support, the training of various categories of servicemen, and their ideological cultivation, and the operativeness of publication of materials should be improved.

All of the readers' critical remarks and suggestions are being studied attentively and will be considered as far as possible in subsequent work.

The editors and the editorial board thank all organizers and participants in the conferences and meetings and, first of all, the command and political organs of

the formations and large units of the Red Banner Transcaucasus Military District for the high evaluation and good wishes. The editors express special gratitude to Comrades A. I. Shirikin, L. A. Vinogradov, A. P. Zakrzhnyy, I. A. Borzov, Yu. I. Alekhin, V. Ya. Dmitriyenko, N. G. Gulya, and V. D. Brichenets who took a direct part in the preparation and conduct of the conferences and meetings with the readers.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON U.S. STRATEGY OF 'DIRECT CONFRONTATION'

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 7-12

[Article by Lt Gen I. Perov: "The American Strategy of 'Direct Confrontation' --A Threat to Peace and Security"]

[Text] The military-political situation in the world at the end of the 1970's and the beginning of the 1980's has become substantially more complex. The aggressiveness of imperialism (primarily American), has increased sharply. In the policy of the leading NATO bloc countries there has been an abrupt turn from detente to confrontation with the USSR and the socialist commonwealth as a whole. The U.S. ruling circles opted for a policy of outright and active confrontation with the forces of peace and progress. "We must build peace," stated the American president, "on the basis of strength, there is no other way." Many regions of the world have been declared a sphere of the "vitally important" interests of the United States. Not wishing to consider the realities of today, this country's ruling circles have set the goal no matter what the cost of altering the balance of forces on the world scene in their favor and erecting barriers on the path to progressive changes in the world.

The need to "arm up" and eliminate the so-called "windows of vulnerability" in the military machine have been set by the Reagan Administration as the primary goals for the 1980's. The increase in American military might, emphasized the U.S. Secretary of Defense, is "one of the most important tasks the given administration has chosen to carry out." In assessing the present situation, the official Washington representatives have asserted that the current decade is to be an "age of crises," when the outbreak of both "limited" as well as universal nuclear wars is possible.

The imperial ambitions of the American ruling circles have served as the reason for the revising of the U.S. military strategy toward the giving of an even more militant, oppressive nature to it. Anticommunism and anti-Sovietism have always comprised the political essence of all the Pentagon's concepts and doctrines and at present the White House gives primary significance to them and makes active use of them in the entire spectrum of political, economic and international relations. They have found their complete embodiment in the new military strategy adopted by Washington and which in June 1981 the U.S.

Secretary of Defense described as a strategy of "direct confrontation" with the USSR on global and regional scales. The given strategy has an overtly aggressive nature and envisages the decisive use of military force as the main means in the drive of the U.S. ruling circles to achieve the dictating of terms to the world. Its essence comes down to the following. They feel that over the next few years, "U.S. military might should be unsurpassed," and for this reason in the national federal budget priority is given to accelerated militaristic preparations to the detriment of the social programs. The armed forces have been given the task of being ready for immediate military operations in local conflicts in any regions of the world as well as for entering a war on a global scale. For this, the current and long-range Pentagon plans envisage specific measures to substantially increase their combat readiness, particularly for the strategic offensive forces (ICBM, strategic bombers and nuclear missile submarines), to extensively rearming the ground forces, aviation and navy with more modern weapons systems and models, to significantly increasing strategic mobility and the capabilities for the mobilization deployment of the armed forces and defense industry and to increasing the stockpiles of military equipment, weapons, ammunition and materiel.

Significant attention is given to providing military aid to allied and friendly nations in order to employ this lever not only for increasing collective military preparations and increasing the burden of expenditures, but also for strengthening, reinforcing and broadening the American influence and military presence in the strategically important regions of the world. For achieving this goal, as the White House representatives have stated, "it is essential to support repressive regimes as well if they follow in the channel of U.S. policy." The achieving of military-technical superiority of the United States over the USSR and the maintaining of this over an extended period have been set as one of the major tasks in present-day military strategy.

The ultimate aim of carrying out the requirements of the "direct confrontation" strategy, as follows from statements by Washington officials, is to give the U.S. Armed Forces the capability of conducting a protracted war against the USSR on any scale both without employing and with employing nuclear weapons as well as their readiness for immediate actions in various regions of the world.

"The new strategy," stated Gen D. Jones, while chairman of the Joint Chiefs of Staff, "requires from us more than our previous regional concepts.... The only method for solving this problem is to constantly increase our military might and thereby create an opportunity to seize several regions of the world." Proceeding from this, the Pentagon has revised a number of former ideas in the area of waging a war, utilizing the armed forces in it and even the future directions for the organizational development of the armed forces.

The views of the military-political leadership on the nature of armed conflicts come down to the fact that they will be protracted and can have both a global and regional nature. In the definition of the Joint Chiefs of Staff, "it is essential that the United States possess the entire spectrum of forces, means and capabilities for conducting an extended universal nuclear war, for participating in large-scale clashes between NATO and the Warsaw Pact as well as in other, smaller-scope regional conflicts which can grow into an universal war."

In May 1982, as the foreign press has announced, the U.S. Secretary of Defense issued the "Directive Instructions in the Area of Military Development for 1984-1988 Fiscal Years and Up to the 1990's." These completely considered the imperial aspirations of the current American administration aimed at establishing a dominant role for the United States in the world by relying on military strength. Here the main emphasis has been put on preparations both for a nuclear and conventional wars.

The employment of the U.S. strategic offensive forces is based upon the concept of "active resistance" which along with other doctrinal views has figured in the Presidential Directive No 59 (August 1980). The basic demands stated in the given concept come down to giving the American strategic offensive forces such a quality which would provide the president with their multivariant employment, that is, from individual strikes in the aim of demonstrating U.S. determination to achieve the set goals up to limited, selective and massed nuclear strikes which would ultimately ensure the "guaranteed destruction of the enemy." Here a massed nuclear strike is the main one and it has been planned in a version of the first preemptive strike. As for the so-called "limited" nuclear strikes, they are to be made against different targets on the territories of the USSR and other socialist nations as well as against objectives in areas of the "vitally important" interests of the United States, primarily in Southwest Asia where their interventionist "Rapid Deployment Forces" will operate.

The concept of "active resistance" also envisages the need of achieving a high survival rate of the strategic offensive forces and the broadening of their capability to conduct a protracted nuclear war. In this regard, the American specialists have been confronted with the task of further increasing the invulnerability of the land-based missiles as well as the survivability of the control and communications systems. The latter "should provide for the restoring of control and the combat employment of the reserve of strategic forces."

The next requirement in this concept is the possibility of widely choosing the objectives to be hit depending upon the developing situation. According to the classification given in the American military press, the objectives on the territory of foreign states are divided into the following four categories: strategic nuclear forces (ICBM, nuclear missile submarines and their bases, command posts, dumps and other important targets); general-purpose forces (troop groupings, command posts, air defense installations, dumps and so forth); bodies of state and military leadership; industrial and economic centers and regions. Here a primary attack is planned by the so-called "disarming" (against the strategic forces and other objectives of military potential) and "decapitating" (against the bodies of political and military leadership) nuclear strikes with the aim of a maximum weakening of the response. "Our strategy," stated the U.S. Secretary of Defense, "requires that the operational plans envisage an opportunity of both a selective and unrestricted employment of nuclear weapons." For this reason it is not accidental that the programs for the modernizing and accelerated increase in strategic potential have been given the highest priority.

In the area of the development of the strategic nuclear forces, the so-called concept of "essential equivalence" was adopted the essence of which, in the

estimate of foreign specialists, consists in the following. First of all it requires a significant increase in the might of the strategic offensive forces for achieving indisputable superiority over the USSR and the use of these forces as an instrument for achieving their political goals and applying diplomatic pressure. It is also oriented at increasing the invulnerability and survivability of the strategic offensive forces the nuclear missile attack warning, control and communication systems as well as permanent military-technical superiority of the United States in the area of developing new strategic weapons.

The attaining of these goals and actually U.S. superiority in strategic weapons was specifically reflected in the "strategic program" for the 1980's adopted by the American Administration in 1981. This not only confirmed the previously set current plans for the development of strategic offensive forces, but also outlined new wide-scale measures in this area.

In increasing military potential, a special place has been assigned to the new MX ICBM which is in the final development stage. It, as the foreign press has announced, is being developed as a first-strike weapon and will be a multiple equipped (10 warheads of 600 kilotons each) and highly accurate reentry vehicle. In terms of its destructive capability, one MX missile should be the equivalent of 15-20 Minuteman-3. Commissioning is planned for 1986. The Pentagon has worked out several variations for deploying the MX missile complexes and as an intermediate one, in the Minuteman silos. In the aim of accelerating the choice of the basic basing version, Reagan, as the American press has stated, signed the National Security Council Directive No 35 (May 1982) which obliged the Defense Department prior to October 1982 to complete the research on the given problem. At present the American specialists are leaning toward the so-called "compact" basing method in highly strengthened launching silos capable of withstanding the great pressure in a nuclear explosion. For 100 missiles such shelters are to be built 500-600 m apart over a total area of around 30 km².

The second important strategic program is the development of a new sea-based ballistic missile, the Trident-2, the deployment of which on the "Ohio" class nuclear missile subs is planned to begin at the end of the 1980's. This missile, in the estimate of foreign specialists, should possess virtually the same combat capability of hitting highly protected installations as the MX ICBM, that is, it is a first-strike weapon. In accord with the Pentagon plans, in the 1990's the Trident-2 missiles are to be in use on all the submarines of the "Ohio" class (there are to be up to 20 such submarines).

In the accelerated increase in the striking power of the U.S. strategic offensive forces, a special place has been given to the rearming of the B-52G strategic bombers (over 170 aircraft) with the AGM-86B air-based cruise missiles. The Reagan Administration has determined to broaden this program and arm the B-52H bombers (there are around 100 such aircraft in the Strategic Aviation) with such missiles. Each such aircraft will initially be capable of carrying 12 missiles on an outside mounting and from the second half of the 1980's, up to 20 of them (by the additional locating of them in the aircraft's fuselage on a revolver-type launcher).

Recently Washington adopted a decision to develop on the basis of the B-1 aircraft a supersonic strategic bomber, the B-1B which would carry cruise missiles. In 1986 this bomber should be in service in the Air Force units. As a total they plan to manufacture 100 aircraft each of which can carry up to 30 missiles. Simultaneously under the Stealth Program, they are continuing to develop a fundamentally new strategic bomber which, in the estimate of foreign specialists, will be difficult to detect by modern air defense weapons. As a consequence of this the Pentagon plans to use it for making surprise nuclear strikes. A total of 150 such aircraft are to be manufactured. The delivery of the first of them is expected in the 1990's. they will replace the obsolete B-52 bombers and along with the B-1B will comprise the basis of the aircraft fleet in the U.S. Strategic Aviation.

As a result of carrying out such a wide-scale program in the weaponry area, the Pentagon is calculating on increasing the capability of its strategic potential for delivering nuclear ammunition to targets in one launch (sortie) by 1.5-fold within the current decade alone. Moreover, the task has been set of sharply increasing the striking power of the strategic offensive forces in hitting highly protected targets, and above all with their surprise employment in preemptive actions.

There are also plans to carry out a broad range of work in improving the combat control and communications systems for the strategic offensive forces in the aim of increasing their survivability and stability in a protracted nuclear war.

For carrying out all the strategic programs, the share of expenditures on the strategic forces are to be increased by almost 1.5-fold. For the 1982-1987 period alone, these expenditures have been estimated at 222 billion dollars by the White House.

U.S. strategic nuclear potential will rise even more in line with the planned deployment of 108 American Pershing-2 missiles and 464 land-based cruise missiles in Europe as well as the deployment of the naval Tomahawk cruise missiles on nuclear submarines and surface vessels; the latter are to be delivered to a total of 150 subs and ships. All the above-indicated missiles have a range of up to 2,500 km and can carry nuclear warheads. According to the statements of Western specialists, they are the connecting link between the general-purpose forces and the strategic offensive ones and their presence will make it possible to respond to events along the entire spectrum of conflict situations and to make strikes against targets located deep in enemy territory. Here, as the foreign press has pointed out "the NATO command will possess an opportunity to choose different variations for making nuclear strikes, including strikes against forces deployed on Soviet territory," with any level of escalation in the conflict.

The ideas of the new U.S. military strategy of preparing for a so-called "limited" nuclear war (primarily in Europe) lower the "nuclear threshold" and increase the probability of the unleashing of a nuclear catastrophe by the forces of militarism. This catastrophe inevitably and irretrievably will assume a global nature.

The appearance of the "direct confrontation" strategy caused a change in the basic provisions in a number of concepts involving, in particular, the employment and development of the American general-purpose forces. According to the statement of the U.S. Secretary of Defense, one of the confusions in the former military doctrine of the American government concerning a war with the employment of only conventional weapons was that it was viewed as "rapid." He felt that the United States should prepare for a protracted conventional war: "An essential step in the process of revising our views on conventional war is the rejection of artificial concepts and such fanciful categories as the concept of waging 'one and a half' wars." As a result, a new concept was adopted of "geographic or horizontal escalation." Its essence was that in the event of an outbreak of an armed conflict in any region of the world, the United States should be capable of initiating and conducting military operations "up to a complete victory" in several different, most "vulnerable regions for the enemy."

The requirements of the American "direct confrontation" strategy and the new concepts ("active resistance," "limited nuclear war," "essential equivalents" and "geographic or horizontal escalation") were fully taken into account in the directive instructions of the secretary of defense on the question of military organizational development up to the beginning of the 1990's.

In particular, in the area of developing the general-purpose forces, the Pentagon's proposals, as the Western press has announced, come down to the following basic provisions.

In the regular ground forces, the number of divisions by the 1990's should be increased from 16 to 25, and for this the number of personnel must be increased by a minimum of 135,000 men, primarily for making up the formations to be fielded. In line with the commenced broad technical reequipping of the units and subunits with more advanced military equipment and weapons (tanks, guns, RSZO [?a type of missile], antiaircraft guided missiles, rifles and so forth), in the second half of the 1980's there are plans to convert to a new TOE for the ground forces. For example, the "Division-86," in the estimate of Western specialists, should possess high striking power and mobility, effective means for combating enemy tanks and aviation, and the ability to more successfully conduct combat operations under the conditions of the use of weapons of mass destruction and the broad employment of radioelectronic countermeasures.

Particular attention will be given to the interventionist "Rapid Deployment Forces" which have been organized and trained chiefly for quickly invading any region of the world where the situation can be viewed by the U.S. military-political leadership as threatening the "vitally important" American interests. In 1983, they are to be given the status of a joint U.S. armed forces joint command in Southwest Asia. By the end of the 1980's, the commander of these forces should have at his disposal 5 divisions of ground troops and 2 marine ones with 2 air wings, at least 10 air wings of tactical aviation and 2 of strategic (B-52 bombers), 3 multipurpose carrier groups and a significant number of logistical support subunits.

The Pentagon intends to deploy a portion of the "Rapid Deployment Forces" in Southwest Asia, that is, deploy on a permanent basis a large grouping of its

armed forces close to the southern frontiers of the USSR. This has been confirmed also by statements of officials from the American Administration which have categorically asserted that "now the time has come for American intervention in the Near East."

By the 1988 fiscal year, in the Air Force the number of tactical air wings should rise to 28, and by 1991, up to 38 (at present there are 24). This will make it possible to increase the aircraft fleet of the tactical aviation by almost 1,000 aircraft. The number of military air transports will more than double (from 522 to 1,090) and this will increase its capabilities for strategic airliftings of troops to the theaters of military operations significantly distant from the North American continent. By 1986, the task has been set of providing the ferrying of up to 80 squadrons of tactical fighters (around 1,900 aircraft) in 10 days from the United States to Europe.

By the end of the current decade, in the Navy the number of ships should increase up to 600 units (at present there are around 490). Here for ensuring the global claims of American imperialism the demand for carrier forces will grow sharply. The Pentagon leadership estimates that by the beginning of the 1990's, it will need 22 carrier multipurpose groups and 4 expeditionary marine divisions.

Recently, in the militaristic preparations of the United States a special place has been given to the "chemical rearming" program. During the forthcoming 5-year period, there are plans to spend from 6 to 10 billion dollars on it alone. This program envisages a fundamental modernizing of the military chemical arsenal and an increase in the number of chemical ammunition up to 5 million units. For this purpose, a plant for producing binary toxins (a capacity of 70,000 shells a year) is already being built in Pine Bluff, Arkansas. The output of military chemical products is also to be increased at many other existing enterprises. At the same time, the number and capacity of the dumps and storage facilities for toxins are to be increased, including in Western Europe.

In the U.S. Armed Forces, organizational measures are being carried out widely to reform and strengthen the military chemical service. The training of personnel for actions under the conditions of conducting chemical warfare has been substantially broadened. Important attention was given to this question, in particular, at such major exercises as the exercise for American forces in Europe "Reforger-13" (1981) and at the joint American-South Korean "Team Spirit-82" (February-April 1982).

In the estimate of foreign military specialists, for organizing armed forces which would be capable of carrying out the new military strategy of the U.S. ruling circles, in the period of the 1983-1987 fiscal years alone, an additional up to 750 billion dollars would have to be spent over the already-planned 1,718,000,000,000 dollars.

The American Administration, in endeavoring to diversify the means for conducting combat operations, also views space as a potential theater of military operations. According to a statement by President Reagan, he has approved a large-scale program to prepare for conducting war in space in the aim of

"strengthening the security of the United States and maintaining a leading position in this area." The U.S. policy of militarizing space has been confirmed by actual deeds. The Air Force continues to develop a small-sized air-based interceptor which is designed for destroying earth satellites and is conducting research in the area of developing a space laser weapon. According to the Pentagon plans, from 1987, all military-purpose satellite launches will be carried out with the aid of reusable space vehicles. In the course of carrying out the last flight of such a ship, it carried and tested secret military-purpose equipment, including scanning sensors for detecting space objects. The militaristic bent in the space programs is a component part in the U.S. preparations for war.

As a whole, the new U.S. military strategy is based upon the use of force in international affairs, upon an accelerated rise in the nation's military potential and intervention into the affairs of other states. It does not consider the actual balance of forces both on a global and regional scale. Such a strategy, embodied in the multivariant plans for conducting aggressive wars in the interests of carrying out the global aspirations of American imperialism, entails an arms race of unprecedented size, including for nuclear arms, and pushes mankind to the brink of catastrophe.

The Soviet government in its international policy has adhered to the opposite course, the basic direction of which has been and remains a struggle for the peace and security of peoples, for detente, for a checking of the arms race and the preventing of any wars. All honest people in our planet call the new Soviet proposals set out in a message from L. I. Brezhnev to the Second Special UN General Assembly Session a historic contribution by the USSR. This stated that "the Soviet Union assumes the obligation not to employ nuclear weapons first."

However, our nation will be able, under any circumstances, to be concerned for its security. Under the conditions of the wide-scale militaristic preparations by the United States, the Soviet Armed Forces are entrusted with a special responsibility for ensuring the secure defense of the motherland and the security of its allies and friends. For this reason the duty of the Soviet military is to constantly increase political vigilance and combat readiness and in collaboration with the men of the fraternal armies to vigilantly guard the victories of socialism.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON SITUATION IN MIDDLE EAST

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 13-18

[Article by Rear Adm L. Trofimov: "The Military-Political Situation in the Near East"]

[Text] The Near East for already 35 years has been a "hot spot" in our planet, a dangerous focus of constant military tension and tragic events which in their importance reach far beyond the region's limits. The exceptionally complex situation which has prevailed for an extended time in the given area has been a consequence of the intrigues of American imperialism, international Zionism and the Israeli ruling upper clique. Precisely this evil alliance, in pursuing selfish goals, is doing everything in order by any means, primarily with the aid of military force, to achieve a resolution of the Near East crisis in its own favor and to the detriment of the Arab peoples.

The strategic aggressive plans of the United States and Israel are an impediment to solving the main question lying at the basis of the Arab-Israeli contradictions, the Palestinian problem. Instead of a just resolution of it, considering the legitimate national rights of the Arab people of Palestine, they are holding out a scanty "administrative autonomy" for the Palestinians within Israel. This would legally reinforce the occupation of Palestinian territories. Washington and Tel Aviv are fearful that the creation of an independent state headed by the PLO which has been supported by the United Nations, other international organizations and all the peace-loving, democratic forces of our world headed by the Soviet Union, can become an insurmountable obstacle on the path of realizing the lunatic Zionist program of forming a "great Israel" within boundaries from the Nile to the Euphrates.

The ruling circles of the imperialist states have always viewed the Near East as one of the most important strategic and economic regions of the world. As foreign specialists have pointed out, its importance is determined by its advantageous geographic situation, as it directly abutts the southern flank of NATO as well as the frontiers of the USSR and the other states of the socialist commonwealth. Across it run the shortest overland, sea and air routes linking Europe, Asia and Africa, as well as the basins of the Atlantic and Indian Oceans. In addition, according to official data, around 70 percent of the known oil reserves of the capitalist world are in the Arab countries and Iran.

The Near East satisfied 12 percent of the U.S. demand for "black gold," 60 percent for Europe and 75 percent for Japan. Under the conditions of the growing energy difficulties in the world, Washington's policy in the region has begun to be largely determined precisely by the oil interests and is aimed at ensuring access for the imperialist monopolies to the oil reserves and maintaining high profits from the exploitation of the Arab peoples.

The expansionistic neocolonialist policy of imperialism in the Near East, in being based on anti-Sovietism and anticommunism, is pursuing hegemonistic aims, that is, to turn the region into a staging area for a struggle against the USSR and to keep it as a source of raw materials, a sphere for the investment of capital and a market for goods. For achieving this every measure is undertaken to prevent the growth of the national liberation movement here for the strengthening of leftist forces, to divert the Arab nations from the struggle against Israel and prevent them from carrying out profound socioeconomic changes and to weaken their ties with the socialist world. The designated factors, in the assessment of the American Administration, at the given stage represent the greatest danger for American interests in the Near East.

"Diplomacy of force" has always rested at the basis of the White House's approach to the Near East problem. The coming to power of the Reagan Administration has been marked by an accentuation of the militaristic aspects of this policy. Having set out to increase international tension, it to an ever-greater degree is endeavoring to subordinate the development of events in the Near East, as in other regions of the world, to its global imperial strategy aimed at intensifying the struggle against the socialist commonwealth and the national liberation movement. The component elements in Washington's policy in the region are all-round support for the aggressive policy of Tel Aviv; the increasing of the American military presence here, the putting together of a "strategic alliance" between Israel and the conservative Arab regimes on an anti-Soviet basis, expanding the network of military bases, creating the police "Rapid Deployment Forces," provoking regional conflicts, carrying out militaristic demonstrations in the form of major military exercises in this area and so forth.

Israel is the basic tool for carrying out the aggressive American policy in the Near East. Washington gives close attention to strengthening the might of its armed forces and coordinates its Near Eastern policy with it within the memorandum on "strategic cooperation." When he was the U.S. Secretary of State, A. Haig in an interview with the NEW YORK TIMES emphasized: "At present, Israel is an ally the increased might and prosperity of which conform to the national interests of the United States..., since it is perfectly apparent that a strong Israel can play an important role in defending our mutual strategic interests in the region." The annual financial aid to the Zionist state exceeds 2 billion dollars, and military aid is over 1 billion. The Pentagon has delivered its most advanced weapons and military equipment including the F-15 and F-16 aircraft, the M60A3 tanks, artillery weapons, armored personnel carriers and so forth.

In providing complete political support and enormous military aid to Israel, the U.S. ruling circles have turned it into their main bastion in the Near East and into an international policeman for combating the Arab national liberation

movement and the progressive regimes in the region. Washington and Tel Aviv with the aid of flagrant force intend to impose on the Arab nations their own plans for a Near East settlement and these would ensure them with the establishing of dominance in this region. They are increasing military-political pressure on Lebanon, Syria and Jordan in the aim of involving them in the Camp David deal. They are doing everything to weaken the Palestinian resistance movement and to force it to agree to the American-Israeli plan for solving the Palestinian question. For achieving its aims, Tel Aviv has actually set out on a path of monstrous genocide and international plundering in order to destroy the Palestinian people. Clear confirmation of this course is the brazen invasion of Lebanon by Israeli troops which led to the death of thousands of Lebanese and Palestinians.¹

The traitorous policy of the former Egyptian President Sadat contributed significantly to strengthening the political influence and broadening the military presence of Washington in the Near East. In the assessment of foreign observers, Egypt's abandonment of the policy agreed upon by the other Arab nations and the signing of the Camp David Agreements (18 September 1978) substantially facilitated the expansionistic actions of Israel and the United States in this region. The conclusion of a separate Egyptian-Israeli "peace" treaty (26 March 1979) on the basis of the given agreements was a turning point in the foreign policy of Cairo confirming the pullback of the leading Arab nation from a military confrontation with Tel Aviv. The Egyptian leadership went completely over to the American-Israeli positions for a settlement of the Near Eastern question. This made it possible to Israel to annex the Golan Heights and East Jerusalem. It categorically refused to pull back from the West Bank of the Jordan River and from the Gaza Strip and imposed its conditions in the talks with Egypt. The United States assumed a special right to act as the guarantor for the carrying out of the Camp David Agreements and even resort to direct military intervention "in the event of the rise of a threat to the security" of the Zionist state.

As a "bonus" for the traitorous policy vis-a-vis the entire Arab world, the Sinai Peninsula was "returned" to Egypt. But essentially Cairo did not receive the Sinai back. As is shown in the diagram [not reproduced] for the deployment of the so-called "multinational forces,"² a significant portion of the peninsula actually was transferred to United States and NATO control and on the remaining territory Egyptian sovereignty was substantially infringed. These forces headed by a Pentagon general are based upon subunits from the American "Rapid Deployment Forces" which "in the event of necessity" can be reinforced. The agreement for their deployment was precisely the document which the White House had sought for a long time. It gives the United States the legal right to deploy its troops in the Near East on a permanent basis.

¹ For more detail about the Israeli invasion of Lebanon, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 8, 1982, pp 3-7.--Editors.

² For more detail about the "multinational forces" in the Sinai, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 6, 1982, p 26.--Editors.

Thus, the Pentagon is endeavoring under any pretext to strengthen its military presence in the region. This has been stated very frankly by the Chief of Staff of the U.S. Army, E. Meyer: "If we wish to demonstrate to our friends and enemies the determination to defend American interests in the Persian Gulf region, then it is essential to ensure the presence of U.S. ground forces and navy in this area (in addition to the naval forces already in the Arabian and Mediterranean Seas.--L. T.). It is essential to let it be clearly understood that we are ready to support our policy with the aid of force."

Washington is making an effort to tie Egypt even closer to itself, to strengthen its pro-American, anti-Soviet course, and turn it into an active proponent of its policy in the Near East and Africa. According to data in the Western press, the annual U.S. financial and economic aid to Cairo exceeds 1 billion dollars while military aid in 1982-1983 will reach 1.4 billion. The total volume of aid in reorganizing and rearming the Egyptian Army in 1979-1985 will be 5.35 billion dollars. During the designated period Egypt will receive 35 F-4 Phantom aircraft and 80 F-16, 12 Advanced Hawk antiaircraft guided missile batteries, over 600 M60A3 tanks, 1,000 M113 armored personnel carriers and other weapons. In exchange for this the Pentagon received the right to utilize a number of Egyptian military installations for its own interests, including the airfields of Cairo (West), Cairo (International), Qena, Luxor and Aswan, it is preparing to build a large military complex in the region of Ras Banas on the Red Sea coast and is seeking legal validity for this on a contractual basis as an American military base. Joint exercises of the "Bright Star" type have assumed a regular nature with the participation of the American "Rapid Deployment Forces" on Egyptian territory as well as in a number of other Near Eastern and African countries.

The American Administration is also giving great attention to Saudi Arabia, one of the richest states in the capitalist world in terms of the reserves and exports of petroleum. In 1981, its output in this nation reached 500 million tons and income from sales was 115 billion dollars. The economy of the kingdom is unable to utilize such financial earnings and for this reason the Saudi leadership invests them abroad. Over 100 billion dollars are kept in American banks alone.

Considering the enormous energy and financial capabilities of Saudi Arabia as well as its large influence in the Islamic world, Washington is endeavoring to strengthen the nature of this nation's foreign policy which as a whole conforms to U.S. interests, seeing in it a potential defender of its positions in the major oil-producing region of the world which is the Persian Gulf. According to statements in the foreign press, President Reagan has promised that the United States "will never let happen to Saudi Arabia what happened with Iran." Large-scale deliveries of modern weapons and the providing of aid to develop the military infrastructure are to play the role of the drive belt in these plans. According to the data in the English newspaper FINANCIAL TIMES, during the period from 1971 through 1980, agreements were concluded to supply the kingdom with weapons totaling 34 billion dollars.

A major transaction was the sale to Ehr-Riyadh [the House of Saud] in October 1981 of an enormous lot of military equipment, including five E-3A aircraft of

the AWACS system with a value of 8.5 billion dollars.³ In March 1982, the Pentagon announced new plans to deliver Saudi Arabia ten RF-5E aircraft and five F-5E with spare parts and training for their crews (the total amount will be 350 million dollars). In February of the same year, an agreement was signed on the setting up of an American-Saudi military committee for working out programs of military-economic cooperation. Washington feels that the sale of weapons to Ehr-Riyadh will make it possible to strengthen American penetration into this nation while the complexity of the military equipment requires the presence of a large number of U.S. specialists. Even now over 10,000 Pentagon representatives are there. According to the White House plans, the role of a support point for the "strategic alliance" which is being forged has been prepared for Saudi Arabia which possesses enormous oil wealth, along with Israel and its military might and Egypt with its human resources.

The United States also pays great attention to the other states in the Persian Gulf Zone, and in playing with the "threat of Iranian and Soviet aggression," is impelling them to create a military-political bloc here and to force on the monarchical regimes an arms race, which, in the plans of the Pentagon strategists, will deepen their dependence upon the United States. On this level the American Administration is undertaking significant efforts to turn the Council for Cooperation of the Persian Gulf Arab States (this includes Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates and Oman) created in February 1981 from an organization formed to coordinate efforts in the political and economic areas into a regional pro-American military-political pact. Thus, in January 1982, at a meeting of the ministers of defense of the council member nations, with obvious pressure from the United States, a draft "defensive plan" was approved envisaging the creation of joint armed forces and, with Pentagon aid, a unified air defense system for the Arabian Peninsula. The Americans have already begun to build the installations of the designated system which subsequently is to be employed in the interests of NATO. The questions were also discussed of adopting a unified TOE for the formations and units, standardizing weapons and equipment and creating their own defense industry.

At the same time, the United States has been endeavoring to impose on the Persian Gulf states the conclusion of bilateral treaties as has been done with Oman. According to the agreement signed with this country in June 1980, the Pentagon has received the right to utilize virtually all the bases, ports and airfields for military purposes. Here Washington has presented itself as a "dependable" partner capable of providing protection "in the event of necessity" both against "external threat" as well as against "internal enemies," that is, against the progressive democratic forces.

The deliveries of military equipment planned and being implemented by the United States to Saudi Arabia and the other Persian Gulf countries surpass the requirements of their national defense. According to the estimate of foreign experts, these weapons can be employed by the American "Rapid Deployment

³ For more detail on this transaction, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 1, 1982, p 24.--Editors.

Forces" under the conditions of the exacerbation of the situation in the Near East.

The Iraqi-Iranian War which has already lasted 2 years, has been a consequence of Washington's hegemonistic policy. The reciprocal territorial claims between Iran and Iraq were merely a pretext for initiating the armed conflict which has brought them enormous harm. The United States and Tel Aviv have been interested in weakening both countries, and for this reason they have undertaken every measure to prevent a settlement of problems between them. The armed clashes between the two developing nations which hold antiimperialist positions meet the interests of only their common enemies. This war, as the West German journal BLATTER FUR DEUTSCHE UND INTERNAZIONALE POLITIK emphasizes, "fits beautifully into the strategy of American imperialism vis-a-vis the Iranian revolution. It is not to the benefit of either the Iraqi or the Iranian peoples, and only the Pentagon and Israel have gained." The cynical statement by the Israeli general R. Eytan shows this very eloquently: "Just look how they murder each other--sheer delight."

In the press there has been information on the Pentagon's intentions to deploy its own troops in the given region either between the hostile sides as notorious "multinational forces" or on the territories of the monarchical Persian Gulf states for protection against the "Iranian and Soviet aggression" which purportedly threatens them.

A tense situation also remains in the south of the Arabian Peninsula. The United States, with the aid of the Arab reaction, is making attempts to involve the YAR [Yemeni Arab Republic] in broader cooperation. They are putting greater pressure on the PDRY [People's Democratic Republic of Yemen], endeavoring to complicate the situation in the nation, to prevent the carrying out of profound socioeconomic changes as proclaimed in the program of the Yemen Socialist Party, to weaken the progressive regime and attain its ouster.

The undermining of the progressive regimes existing in the region is one of the important component elements in the adventuristic American policy in the Near East and in the adjacent regions of Africa. For a number of years now Washington has been waging an undeclared war against Libya. Just recently the White House has banned the importing of Libyan oil and the exporting of equipment to this country, it has curtailed the activities of the American oil companies in it and sent American specialists back to the United States. The Pentagon conducts exercises of the 6th Fleet directly off the Libyan shores in the Gulf of Sidra and here in August 1981, a provocative attack was made on two Libyan aircraft.

Syria has also been subjected to strong military-political pressure and this country has been one of the most consistent opponents of the Camp David Agreements. In relying on the support of the National Front of Strength and Resistance (Syria, Libya, Algeria, the PDRY and the PLO) which has repudiated this anti-Arab conspiracy, it has put up active resistance to the realization of the American-Israeli plans in the Near East. Because of this, Washington and Tel Aviv, in using the Arab reaction and the rightist forces within the nation as well as the military pressure which Israel has applied on Syria, have

endeavored to destabilize the situation in it and incline Damascus to approve a separate deal.

Thus, the situation in the Near East remains very complex and explosive and this is the result of the adventurism of the Reagan Administration, the expansionism and flagrant military pressure of the Tel Aviv "hawks" on the Arab countries and the Palestinian resistance movement. By strong-arm tactics, Washington and Tel Aviv are endeavoring to further split the Arab world, to weaken the anti-Israeli coalition and eliminate the progressive forces in the region. Regardless of the persuasive examples of the impossibility of resolving international problems by naked force, the United States stubbornly refuses to realize this, being held captive by its own global hegemonistic policy of which Israel is the champion in the Near East. Such a policy has become the main impediment on the path of establishing a lasting peace in this region. The so-called U.S. "new Near East policy" announced on 1 September 1982 by Reagan again demonstrates Washington's desire to strengthen American-Israeli dominance in the region, it categorically refuses the Palestinian people their right to create their own state and shows that the anti-Arab Camp David Accord "remains the foundation" of the U.S. position in this area.

A constructive program for an all-encompassing, truly just and really lasting settlement of the Arab-Israeli conflict was formulated by Comrade L. I. Brezhnev in the course of the visit to Moscow by the leader of the PDRY, A. N. Muhammad, held in the middle of September 1982. It provides: the return of all the territories occupied by Israel since 1967 to the Arabs; ensuring the inalienable right of the Arab people of Palestine to self-determination and to creating their own independent state on Palestinian lands which will be liberated from Israeli occupation; the incorporation of the eastern part of Jerusalem in the Palestinian state; the ensuring of the right of all states in the region to a secure and independent existence and development; the ending of the state of war and the establishing of peace between the Arab states and Israel; the elaboration and adoption of international guarantees for settling the conflict.

As for the USSR, it has been and remains on the side of the progressive forces in their just struggle. It will not remain indifferent to the adventuristic actions of imperialism and Zionism in the Near East. The Statement of the Soviet Government of 15 June 1982 emphasizes: "Those who presently make policy in Israel should not forget that the Near East is an area located in direct proximity to the southern frontiers of the Soviet Union and events in it cannot help but touch on Soviet interests. We warn Israel of this."

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON U.S. ARMY'S USE OF FIELD ARTILLERY

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 25-29

[Article by Candidate of Military Sciences, Col V. Kalashnikov: "The Combat Employment of Field Artillery and Mortars in the Interests of a Brigade"]

[Text] According to announcements in the American military press, in all types of divisions of the U.S. ground forces (mechanized, armored, infantry, airborne and air assault) for the period of conducting combat operations, a brigade element is to be formed which would organically include the combat and rear units and subunits. The fighting strength of the brigade is determined by the division's commander and depends upon the tasks, the specific situational conditions as well as upon the available men and equipment. Ordinarily a brigade would include up to five combat battalions, artillery and antiaircraft battalions, a combat engineer company and other subunits. The foreign press has emphasized that the number of artillery battalions in a brigade can vary and these are assigned from the regular divisional as well as the attached corps artillery for basically carrying out two combat tasks: close support and fire support.¹

In carrying out the task of close support, an artillery battalion is attached to the brigade and fires primarily at the request of the brigade's commander within the zone of the brigade's actions. Here from the artillery battalion, a group is assigned to each battalion (battalion tactical group) of the brigade, while a fire support coordination team is assigned to a company (a company tactical group). The fire system is worked out by the staff of the artillery battalion, the commander of which, as a rule, remains with the brigade's command post. If a field artillery battalion is carrying out a combat mission of fire support, then it reinforces the fire of a battalion involved in close support primarily according to its plan and requests in the interests of the brigade. A liaison officer with a radio is sent out to the staff of the close support battalion from the battalion reinforcing its fire. Both battalions ordinarily take up firing positions in the brigade's zone of operations.

¹ For more detail on the tasks of field artillery in combat, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 2, 1977, pp 25-31 and No 5, 1980, pp 27-32.--Editors.

The 155- and 203.2-mm self-propelled howitzers assigned to a brigade for the purpose of its support and reinforcing are designed to fire not only conventional, but also nuclear ammunition. For the 150-mm howitzer, they have also developed the M712 Copperhead projectile which is guidable on the terminal leg for hitting point targets.

On the offensive, usually at least one battalion of 155-mm self-propelled (105-mm) field artillery howitzers (Fig. 1) [Figs. not reproduced in this report] from the division's regular weapons is assigned for close support to the division's first echelon brigade which is conducting combat operations in the main sector. In addition, an artillery battalion carrying out the task of close support for the brigade's units and subunits can be reinforced by the fire of one battalion of 155-mm self-propelled howitzers usually assigned from an attached artillery brigade division from the corps field artillery. Sometimes the close support battalion of a first echelon brigade can also be reinforced by the fire of a battalion of 203.2-mm self-propelled howitzers (Fig. 2), and this battalion, remaining under the division's artillery commander, fires in the brigade's zone of advance. In a brigade's interest, the overall support and its reinforcing can also be provided by the regular artillery weapons of a division and a corps on the basis of a decision by their commanders.

In the event when the brigade's offensive is prepared ahead of time and the task has been set of conducting combat operations in the main sector of a division, provision is also made to assign a corps field artillery brigade consisting of two battalions of 155-mm self-propelled howitzers and one battalion of 203.2-mm ones for close support. A battalion of 155-mm self-propelled (105-mm) howitzers is assigned to the second echelon brigade and this battalion, as a rule, prior to its commitment to battle fires at the request of an artillery battalion from one of the division's first echelon brigades. This battalion carries out the task of close support, that is, it reinforces the battalion with its fire.

The firing positions for the batteries of the artillery battalions of 155-mm (105-mm) howitzers which determine the questions of close support and fire support are set up in the zone of advance of the brigade the actions of which they are to support. If a close support battalion for a first echelon brigade is to be reinforced by the fire of a battalion of 203.2-mm self-propelled howitzers, then the latter is also positioned in the zone of the advancing brigade.

The distance of the firing positions for the batteries of 155-mm (105-mm) howitzers behind the forward edge is ordinarily 2-4 km, and for the 203.2-mm self-propelled howitzers, from 4 to 6 km. Each battery, in addition to the main firing position, prepares at least one alternate.

During the offensive, all the artillery of the first echelon brigade, in taking up its firing positions before the start of combat operations, first of all neutralizes and destroys the enemy weapons, personnel, artillery, mortars, air defense weapons and other objectives. During the period preceding the offensive, it participates in the softening-up process, periodically concentrating

fire on the forward edge of the enemy defenses, and primarily on the breakthrough sector. Then the close support artillery (battalions) goes over to neutralizing the enemy strongpoints and weapons ahead of the brigade's first echelon advancing battalions (battalion tactical groups).

In exploiting the success of the offensive, in the aims of providing continuous fire support for the brigade's units and subunits, the positions of the close support battalion (battalions) are designated as close as possible to the first echelon battalion tactical groups, at a distance of 2-3 km away from the line of contact with the enemy. These battalions operate in a similar manner in a meeting engagement.

U.S. military specialists have pointed out that when a brigade carries out a march, in anticipation of a meeting engagement, the close support battalion (battalions) moves in the brigade's common column in such a manner, upon encountering the enemy, to deploy rapidly, to support the actions of the cover and security subunits and to support the deployment of the main forces of the formation into battle order. In the course of pursuing the enemy, the close support artillery operates in a similar manner.

Planning and control of fire by the field artillery battalions operating in the interests of a brigade are provided by the fire support coordination group which is ordinarily located at the brigade's command post. It includes the appointed commander of one of the close support battalions with the required number of personnel and communications equipment. The group is mounted on a command-staff vehicle (CSV) or an armored personnel carrier (APC). The close support battalion, as a rule, prepares and deploys a group in each of the brigade's combat battalions with a fire support coordination team in the companies; these are part of them during the entire period of combat operations. On the basis of the staffs and staff batteries of the artillery battalions used in the interests of a brigade, fire control centers are set up for the battalions and in their batteries, battery fire control points. The former are positioned in the area of the battery positions and the latter directly at the firing positions.

The U.S. military press has stated that for increasing the stability of control over combat operations, along with the main command post, the brigade's commander usually creates a special group which, along with other officials (representatives from the squads for operational and combat preparation, reconnaissance, artillery, tactical aviation and air defense) includes the commander of the close support battalion or an appointed officer from the battalion. This group in essence is an alternate command post of the brigade and this is located on two CSV (APC) or on a helicopter.

The firing of artillery used in the interests of a brigade is planned on the basis of the division artillery support and the close support battalion (battalions) fire plans which also provide fire tasks for the battalions which reinforce its (their) fire. The fire support plan is issued to all the field artillery subunits. If a corps field artillery brigade is providing close support to a first echelon brigade operating in the main sector of a division's advance, then the planning of fire is entrusted to the artillery brigade staff. In this instance, the same control and command bodies are deployed as those described above.

In giving attention to the reconnoitering of targets on the battlefield, the commander of the division's artillery can assign ground and air spotters (from the appropriate subordinate and attached bodies) to the brigades.² From ground posts and helicopters they detect the targets on the battlefield, determine their coordinates and transmit the obtained (reconnaissance) information to the fire control centers of the battalions and when necessary correct the fire. The data on targets to be hit immediately, having been received at the fire control centers of the battalions, are evaluated, decisions are taken from them and then the commands to open fire are transmitted via the control posts to the firing batteries. Information on the targets not to be hit immediately is ordinarily sent (through the fire control center) to an officer of the fire support coordination group and is included in the division's or divisional artillery fire support plans. Consequently, the targets will be hit by the forces of the units and formations which have been given the tasks of general support or reinforcing of general support.

Such a system for the combat employment of artillery, in the estimates of U.S. military specialists, makes it possible in individual instances (depending upon the situation and the tasks) to create a 5- and 7-fold increment in the fire power of the formations and units conducting combat operations in major sectors.

On the defensive, as the U.S. military press has stated, in the interests of a division's first echelon brigade it is possible to use a battalion of 155-mm (105-mm) howitzers for close support of its units and subunits, and for fire reinforcing, another such battalion. Moreover, a brigade's artillery battalion defending in the sector of the enemy's probable main thrust and carrying out the first combat task, that is, close support, can also be reinforced by the fire of a battalion of 203.2-mm self-propelled howitzers. In individual instances, and with the availability of a sufficient number of artillery in a division, up to 3 artillery battalions can be assigned to a brigade. Here the main and alternate positions for the firing batteries of the artillery battalions of 155-mm (105-mm) howitzers, according to statements in the Western press, are set up a distance of 3-6 km behind the forward edge, and a battery from a battalion of 203.2-mm self-propelled howitzers, some 6-8 km away.

On the defensive, the artillery should carry out the following basic tasks: tie down enemy operations, destroy armored vehicles, artillery and mortars, cut off the infantry from the tanks, neutralize the air defense weapons, "blind" command and observation posts, and carry out long-distance mining of the terrain. The field artillery in defensive combat, according to the American military specialists, is employed in two stages: in combat in the security zone and in the basic defensive area. If the cover subunits and units are under the brigade the basic forces of which are located basically in the defensive area, then the planning and coordination of fire support in the security zone and in this area are carried out by the brigade fire support coordination group.

² For more detail on the control bodies for a division's combat operations, see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 2, 1980, pp 21-26.--Editors.

The battalion (battalions) carrying out a close support task for a first echelon brigade, as a rule, deploys in temporary firing positions close to the forward edge of the defenses for hitting the enemy at a maximum possible range. It is felt that artillery fire supplemented by air strikes and carried out at a maximum range will force the enemy to deploy, give way the axis of the main thrust and force it to advance in the direction needed for the defending troops. In this instance, when the defending brigades does not have sufficient resources for simultaneously hitting the targets of the advancing enemy, it is recommended that the enemy actions be impeded by the employment of smoke. Then (as they emerge from the smoke) the enemy subunits are hit by artillery and other weapons.

When the commander of a division (corps) controls the cover troops, the planning and coordinating of fire support in the security zone and in the basic defensive area are entrusted to the division's fire support coordination group (the corps fire support coordination center).

For supporting the actions of a battalion tactical group in the security zone, it is possible to assign up to a battalion of 155-mm (105-mm) howitzers. The batteries of this battalion are deployed at firing positions in such a manner as to have an opportunity to fire at those targets which can be detected by the cover subunits. The distance between the batteries along the front in this instance can be 2-5 km and the artillery subunits change firing positions in turn.

With the retreat of the battalion tactical group into the basic defensive region, the artillery battalion supporting it is given the task of providing fire reinforcement for the battalion which is carrying out both close as well as general support for the brigade.

In the course of combat operations in the basic defensive area, the commander of the brigade's close support battalion controls the field artillery fire in the defensive zone on the basis of a previously drawn up fire plan and according to the requests from the commanders of the supported subunits.

In the conducting of retreat actions by a brigade, as foreign military specialists have pointed out, the close support battalion can be assigned to support the battalion tactical group which is conducting holding operations and supports the disengagement of the formation from battle. With the retreat of a brigade, the battalion provides fire support for the subunits of the forward, flank and rear security.

In addition to field artillery, fire support for a brigade's operations in combat can also be provided by mortar subunits. The foreign press has stated that in the aim of increasing the fire power of subunits and units, all companies (with the exception of tank) and battalions of the mechanized, armored and infantry divisions will have their own mortars. In each motorized infantry (infantry) company there is a mortar platoon (three 81-mm mortars, Fig. 3), and in each fire support company for a motorized (infantry) and tank battalion there are four 106-7-mm mortars. Thus, a motorized infantry (infantry) battalion has 13 mortars and a tank battalion has 4.

According to the views of the American command, the mortar subunits of a brigade in combat are capable of hitting with high accuracy and effectiveness targets in trenches, on the back slopes of elevations and in narrow ravines. In using various shells, they can neutralize or destroy enemy personnel, weapons and light armored equipment as well as enemy mortars and artillery in firing positions and can also set smokescreens and illuminate the terrain. Spotters of the fire support coordination teams as well as the company and battalion commanders detect the targets on the battlefield for them.

Mortar fire in combat is controlled by the commanders of the companies and battalions of which the mortar subunits are part through the mortar fire control posts created at the firing positions of the mortar platoons. These posts, having received requests from the spotters or commanders to open fire, calculate the firing data and transmit them to the mortar sections. The latter, employing various shells, fire in accord with the requests.

The mortar subunits provide, as a rule, general support for a motorized infantry (infantry) subunit. Sometimes they are given the mission of close support for a subunit or they can be attached to a subunit (platoon or company). In the latter instance, the mortars fire directly upon the requests of the supported company (platoon). This task is ordinarily set when the subunit is operating on a broad front and the mortars cannot provide fire support from a single position. The firing of the mortars and field artillery in a battalion (battalion tactical group) is coordinated through the fire support coordination group, and in a company (company tactical group) through the team.

In the opinion of American military specialists, such employment of field artillery and mortars in the interests of the brigades organized in U.S. divisions makes it possible to provide fire damage to the opposing enemy, to increase fire power and ensure the carrying out of various fire tasks under difficult conditions on the battlefield.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON SUPPORT FUNCTION OF NATO TACTICAL AVIATION

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 41-44

[Article by Candidate of Military Sciences, Docent, Col (Ret) G. Osipov: "The Capabilities of Tactical Aviation in Close Air Support (From the Views of NATO Military Specialist)"]

[Text] Judging from the information in the foreign press, the military experts in the aggressive imperialist NATO bloc view the possibilities of employing various combat tactical aircraft for carrying out missions in providing close air support for the ground troops, proceeding from the efficiency criteria described in the first part of the given article.* Here they conditionally divide all the examined aircraft into a number of classes (groups) the basic ones being the following:

- 1) Ground attack planes and fighter bombers developed specially for operations against ground targets on the battlefield;
- 2) Multipurpose tactical fighters basically designed for striking objects deep in the enemy battle formations;
- 3) Air combat fighters and interceptors;
- 4) Light combat trainers.

The ground attack planes and fighter bombers. The typical representatives of these in the NATO air forces are the A-10 Thunderbolt-2, the Jaguar and the Alpha Jet.

In the opinion of foreign military specialists, the response speed of the air units and subunits equipped with the American A-10 ground attack planes to the requests of ground forces is ensured mainly by air patrolling and by the executing of several (up to four) combat sorties by each of them per day without refueling from field airports located close to the front line (up to 150 km).

* See ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 8, 1982, pp 46-49.--Editors.

The A-10 ground attack plane with its existing equipment can conduct combat operations predominantly during the day under visual flying conditions and instrument ones (the flight conditions with an altitude of at least 270 m for the lower cloud edge and horizontal visibility of 2 km). The reaching of the target and the identification of it by the crew is done only visually and with the aid of air gunners.

The aircraft's payload with a total weight of up to 7,250 kg including a 30-mm cannon, high explosive, fragmentation and incendiary bombs and cluster bombs, a significant number of unguided aviation missiles (UAM) and up to six Maverick guided missiles, as has been emphasized in the foreign press, makes it possible to hit virtually any objects, including small mobile targets.

For crossing enemy air defenses, the aircraft is equipped to warn the crew that it is being hit by radar and dipole reflector release mechanisms. However, the foreign military press has also pointed out that the large size of the aircraft and the need to climb for identifying and diving at the targets make it very vulnerable for air defense weapons, regardless of the armor on the most important elements. In addition to this, for the effective use of the extensive and diverse payload, the ground attack plan is forced to make several passes over the target and this, in the opinion of the NATO specialists, significantly increases the probability of its hit by enemy air defense weapons.

Because of the existing shortcomings and limited capabilities of the A-10 ground attack plane, a number of additions have been made on it. In addition, its two-seater all-weather version has already been developed and is being tested.

The Jaguar fighter bomber is capable of operating from field air strips 1,200 m long. The length of its take-off run from a dirt runway with a full payload (4,500 kg) is around 900 m. This makes it possible to base units armed with such aircraft rather close to the frontline in order to ensure a quick response to the requests of the ground forces in providing them with close air support.

As a total, five modifications of this aircraft have been developed: the A and E for the French Air force, the S (GR.1) and B for the Royal Air Force and the Jaguar International for sale to other nations. They can all fly during the day and at night, but only the French Jaguar-A and the English Jaguar-S and B possess the ability to attack stationary objectives under instrument flying conditions. These have modern sight and navigation equipment ensuring the autonomous guidance of the aircraft to the target. There are plans to install onboard radars on certain of them.

The basic weaponry of the Jaguar fighter bombers (two 30-mm cannons, high explosive bombs, the Beluga cannister bombs and UAM) makes it possible for them to destroy wood-and-earth defensive works, as well as hit personnel and combat equipment on the battlefield. The Martel antiradar missiles designed for neutralizing enemy air defenses can also be carried and employed solely by the series A aircraft.

In order to hit the strike accuracy against small targets, the Jaguar-A aircraft have a container with a laser ranger-target designator while the Jaguar-S has a built-in device for the given purpose.

The Alpha Jet light ground attack planes (Fig. 1) [Figs. not reproduced in this report] can carry suspended cannons, conventional bombs and UAM (the maximum weight of their payload exceeds 2 tons). This will make it possible to employ them for hitting personnel, certain armored and other targets on the battlefield. However, they can attack only visually, that is, mainly during the day and only under visual weather conditions. The Alpha Jet aircraft will cross enemy air defenses predominately by low-level flights.

Multipurpose tactical fighters. Their typical representatives are the F-111 and Tornado aircraft (Fig. 2). These, according to the information of the foreign military press, are capable of conducting combat operations basically from permanent airfields. As a rule, they will be based a significant distance away from the frontline and the speed of response to requests from the ground troops can be ensured only by organizing air patrolling close to the area of combat operations. The high all-weather capability of these aircraft is achieved due to the presence of accurate autonomous navigation and bombing systems which make it possible for them to hit objectives on the battlefield during the day and at night under instrument flying conditions.

The payload of the F-111 aircraft is around 11 tons and for the Tornado up to 7.5 tons. The weaponry of both includes cannons, conventional and guided bombs, cannister bombs and guided missiles. According to the views of the NATO experts, this will make it possible to destroy a majority of targets in carrying out missions of close air support.

The multipurpose tactical fighters will cross the enemy air defense system by flying at maximum-low altitudes (in using the automatic flight equipment with terrain following), by attacking the targets with guided missiles without entering the range of the antiaircraft missile complexes and antiaircraft artillery at the objective as well as by setting active and passive jamming for the radio-electronic equipment. Here they will fly in loose battle formations in such a manner as to ensure mutual coverage against enemy fighter attacks.

The crews of these aircraft are trained to attack moving targets by diving and pulling up from three or four directions.

Regardless of the fact that the multipurpose tactical fighters are designed chiefly for striking objectives deep in the defenses of the opposing side, according to information in the Western press, at present up to 50 percent of the combat sorties are to be made to carry out missions of close air support for the ground forces.

The air combat fighters and interceptors for direct air support are considered by the air force command of the NATO nations to be used only after air supremacy has been won in the area of combat operations. At present, the F-15 Eagle and the F-16 Fighting Falcon which have been developed in the United States are the most modern aircraft of this class in the joint air forces of the bloc.

According to information in the Western press, the first modifications of the F-15 fighters potentially can attack ground targets. However, the lack of the corresponding sight, navigational and bombing equipment on them significantly limits or even completely excludes (particularly under instrument flying conditions) their employment for carrying out such missions. This has been unambiguously stated by certain American leaders. In particular, the former U.S. Secretary of Defense Brown once pointed out that the data published in the press on the altitude combat capabilities of the F-15 fighters in carrying out close air support missions are of a publicity nature.

As a whole, according to the assessment of U.S. Air Force specialists, this aircraft can carry a significant quantity of weapons, but is not adapted for operations against ground targets on the battlefield. Considering such a situation, definite work has been done on the F-15 aircraft and its flight equipment has been improved. In recent years, the American McDonnell Douglas Company, on the basis of the two-seat F-15B combat trainer has developed an attack aircraft and has been testing it since August 1980.

The F-16 fighters in the NATO air forces are designed chiefly for actions against ground targets, including in carrying out missions of direct air support. The flying, navigational and bombing equipment provides an opportunity to guide these aircraft directly to the targets and hit them (stationary and certain mobile ones) on the battlefield during the day and at night under both visual and instrument flying conditions. The weaponry of the F-16 (a six-barrel, 20-mm cannon, the Maverick guided missile, the UAM, guided bombs with a laser homing head and conventional bombs), in the opinion of Western European specialists, makes it possible to hit a majority of targets on the battlefield.

The NATO military experts, in evaluating the F-15 and F-16 aircraft as a whole, feel that in providing close air support to the ground troops, they are close in their capabilities to the fighter bombers. The necessary speed of response, in their opinion, can be achieved basically by organizing air patrolling, since they cannot be based on forward dirt airfields. The F-16 aircraft will counter the enemy air defense weapons by setting up jamming and active maneuvering. They are capable of conducting active defensive and offensive air battles with enemy fighters.

The air force command of the NATO nations plan to use trainer aircraft for attacking ground targets with close air support along with the above-mentioned combat aircraft. Such planes capable of carrying weapons in the Western Press are often termed combat training or, like the Alpha Jet, light ground attack planes. These include the English Hawk, the Italian MB.326, MB.339, the G.91T, the Spanish C-101 and others which can carry weapons and respond quickly to the requests of the ground troops due to the fact that they are based at field runways close to the frontline and patrol in a holding zone.

In assessing the capabilities of the various aircraft to attack targets on the battlefield, the NATO military specialists proceed from the view that the use of the multipurpose fighters, the air combat fighters and the combat training aircraft along with the specialized combat aircraft for the purposes of close air support should make it possible for the joint air forces of the bloc to widely maneuver the men and equipment in carrying out the numerous missions confronting tactical aviation.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON NATO GROUND RADAR EQUIPMENT

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 52-56

[Article by Candidate of Technical Sciences, Engr-Col V. Tamanskiy: "Ground Radars of the NATO Air Forces"]

[Excerpt] In accord with the missions to be carried out, the ground radars of the NATO air forces in the foreign press are divided into three basic groups: those employed for air defense, for controlling the combat operations of tactical aviation and for controlling air traffic.

The radars of the first group are a component element in the national or joint air defense systems and are employed for detecting, determining the coordinates and tracking the detected air targets. These are employed at radar acquisition and identification posts as well as at the radar control and warning posts (centers) which organize the warning of the military and civil administrative bodies of an air enemy, they guide the fighter interceptors to the detected air targets and provide target designation data for the antiaircraft missile complexes. These radars are stationary or mobile (transportable).

The radars in the second group are part of the tactical aviation control systems. These carry out primarily tasks related to monitoring the flights of the aircraft from the moment of their take-off to the return to the base airfield. The radars in the first and second groups, in terms of their technical capabilities are largely analogous and are often used in both the air defense and tactical air control systems. However, while stationary radars can be employed in air defense, judging from the materials in the Western press, only mobile ones are used for controlling the combat operations of tactical aviation.

The air traffic control radars provide safe flying simultaneously for a significant number of aircraft along different routes in set time intervals. The table [not reproduced] gives the performance of the surveillance radars which in many ways are similar of the radars of the first two groups and are employed both in the air traffic control centers of civil aviation as well as in the air forces of the NATO countries.

Beyond their purpose, all radars in terms of their abilities to determine the coordinates of detected air targets, are divided into two-dimensional,

three-dimensional and radars for determining the altitude of air targets (altimeters).

The two-dimensional radars provide detection and determining of two coordinates of air targets, that is, range and azimuth. These are employed in the radar detection and warning posts, in the air defense control and warning centers (posts), in the tactical aviation control posts (centers) and in the air traffic control centers.

The three-dimensional radars are capable of detecting air targets and determining their three coordinates: range, azimuth and elevation (altitude). The principle for determining elevation (altitude) is based upon the employing of antennas which create partial (multiloop) radiation patterns and receiver equipment which processes the signals separately for each loop or antennas of the phased antenna array type which form electrically controllable radiation patterns the beam width of which in the vertical plane makes it possible to rather accurately determine the altitude of air targets. The three-dimensional radars are employed at radar control and warning posts (centers) (without radar altimeters) and in the tactical air control centers (posts).

The radar altimeters determine the altitude of flight of air targets and function together with the two-dimensional radars at the air defense control and warning posts (centers). The widening scale of production and employment of the three-dimensional radars can, in the opinion of foreign military specialists, reduce the use of the special radars for determining the altitude of the air targets.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON U.S. MARINE EXPEDITIONARY BRIGADE

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 9, Sep 82 (signed to press 17 Sep 82) pp 57-62

[Article by Rear Adm A. Rumyantsev: "The U.S. Marine Expeditionary Brigade"]

[Text] The Marines hold a special place in the U.S. Armed Forces. They are mobile, well-armed troops constantly ready for immediate transport by sea and air to any region of the world for suppressing the national-liberation movement of peoples and defending the predatory interests of American imperialism. Their basic purpose is to participate in amphibious operations and conduct combat operations in maritime sectors both jointly with ground forces as well as independently. In peacetime the marines, in addition to carrying out police functions, are also used for standing police service on ships and in coastal units as well as for guarding particularly important military installations.

As has been pointed out in the foreign press, depending upon the scale, nature and intensity of military operations, the Marines may be used as part of the following operational formations: expeditionary divisions, expeditionary brigades and expeditionary battalions. It is also emphasized that because of incorporating a brigade in the "Rapid Deployment Forces," more and more attention is being given to this type of formation. In terms of its combat capabilities, an expeditionary brigade is capable of landing tactical and operational-tactical amphibious assault forces (in the aim of providing support for ground forces advancing in a maritime sector, seizing islands, naval bases, coastal airfields and individual sections of the seacoast) independently or in cooperation with formations of the other Armed Services as well as participate in major amphibious landing operations as the first-wave assault forces for capturing a beachhead.

The brigade is organized for the period of combat operations or for the time of the exercises and maneuvers. Its strength is not constant, but rather depends upon the nature of the tasks to be carried out and the grouping of opposing enemy forces. As has been emphasized in the foreign press, a brigade numbers between 10,000 and 16,000 men. It can include one or two marine regiments, an air group, an artillery battalion, a brigade rear service group and other sub-units. A typical organization of the given formation is shown in Fig. 1 [Figs. not reproduced in this report].

A marine regiment (3,500 men) consists of a staff company and three marine battalions (1,100 men each). The latter is the basic tactical subunit and includes the following companies: staff and service, marine (three) and weapons. The personnel of a marine company (200 men) is equipped with firearms as well as 60-mm mortars and grenade launchers. The weapons company designed to provide fire support for the battalion's subunits and combat tanks has 81-mm mortars and Dracon antitank guided missile launchers.

The air group should provide close air support for the regiment's subunits in the battle to land the amphibious assault forces and in their fighting on the beach. It should provide air defense for the regiment, drop airborne troops and provide air and radar reconnaissance. Its composition depends upon the nature of the missions to be carried out and the degree of expected resistance from the enemy forces. An air group can include one or two ground attack or fighter-ground attack squadrons, two or three squadrons of transport-landing helicopters, three detachments of fire support helicopters [gunships] and two squadrons of reconnaissance and fire correction helicopters, in addition to antiaircraft guided missile, support and service subunits.

An attack squadron includes 20 A-4M Skyhawk aircraft or A-6E Intruders or AV-8A Harriers. Foreign military specialists feel the most promising ground attack aircraft for providing close air support for the landing forces is the AV-8A Harrier VSTOL aircraft which in the 1980's is to replace the A-4M Skyhawk. The Harrier is capable of operating from aircraft-carrying ships which have a flight deck of limited length. It has cannon armament and can also carry two Sidewinder guided missiles or a bombload of up to 2.5 tons.

A fighter-attack squadron includes 15 F-4J Phantom-2 aircraft. They are capable of carrying out missions which are specific to the ground attack planes (they carry a bombload of up to 6 tons) as well as to the fighters.

For strengthening the brigade's air defenses, the air group ordinarily includes a battery of Hawk or Advanced Hawk antiaircraft guided missiles (8 launchers) as well as a platoon of Red Eye or Stinger antiaircraft guided missiles (25 complexes).

The squadrons of transport-landing helicopters are designed to ferry the marines and military equipment from the landing ships (helicopter ships, all-purpose landing ships and transport docks) to the shore. A squadron consists of 24 CH-53D Sea Stallion or CH-46D Sea Knight helicopters, each of which can transport, respectively, 37 and 26 men with full supplies over a distance of 410 and 380 km. At present, marine aviation is receiving a new heavy transport-landing helicopter, the CH-53E Super Sea Stallion capable of transporting 55 marines over a distance of up to 1,100 km.

For providing fire support in combating armored targets, the air group includes detachments of AH-1J Sea Cobra fire support helicopters (3 detachments with 18 helicopters). The helicopters have gun and cannon weapons, Tow antitank guided missiles and unguided rockets. In addition, for carrying out air reconnaissance and fire correction for the naval artillery and artillery battalion, there are two detachments of UH-1E Iroquois reconnaissance-fire correction helicopters (12 helicopters).

The artillery battalion is assigned from the marine division artillery regiment in the aim of providing fire support for the landing subunits when fighting on the beach. It includes a staff battery and four batteries of 155-mm howitzers on mechanical traction (six guns in each battery). A howitzer in a combat position weighs around 7 tons and can fire a fragmentation-HE shell up to 20 km in range, and a rocket-assisted shell up to 30 km. In certain instances, a battery of 203.2-mm self-propelled howitzers (six guns) is attached to the battalion. The weight of such an artillery piece is around 14 tons. It can fire both conventional and nuclear shells over a distance of 16 km.

The brigade rear service group should support the combat activities of the expeditionary brigade. It consists of units and subunits for supply, repair, engineer support, medical services and others.

In the aim of increasing the striking power and offensive capabilities of the landed subunits as well as for increasing the effectiveness of their combating of enemy tanks, one or two tank companies and an antitank platoon can be assigned to the regiment from the division's tank battalion. A tank company numbers 17 M60A1 tanks while the antitank platoon is armed with 24 Tow antitank guided missile launchers mounted on motor vehicles.

Companies (one or two) of amphibious armored personnel carriers support the ferrying of the assault groups from the landing ships to the shore and the crossing of water obstacles during the actions of the troops on the shore. The company has up to 40 LVTP-7 vehicles each of which is capable of carrying 25 men and moving over water at a speed of 7 knots. In addition, a reconnaissance detachment and communications platoon can be attached to a marine regiment.

The expeditionary brigade, as has been emphasized in the Western press, can remain for an extended time on navy ships in areas closest to the probable sites of military operations. It is presently the basic tactical formation which the Pentagon intends to deploy with the outbreak of a crisis situation in one or another region. The plans for creating the police "Rapid Deployment Forces" envisage the inclusion of several such brigades in them. The first was organized in 1981 and by 1985 they intend to create another two. For increasing the mobility, combat readiness and length of combat operations of the Marines in the "Rapid Deployment Forces" in 1982 they intend to increase the size of the group of vessels including floating heavy weapons and military equipment dumps in the Indian Ocean up to 13 (instead of 7). Before 1987, they plan to build 14 vessels which are specially designed floating dumps and these will carry heavy weapons and logistical supplies for three expeditionary brigades. Their personnel is to be ferried by military air transport into the conflict area.

As has been emphasized in the Western press, the basic form of employing the expeditionary brigade is an amphibious landing operation. In line with this the U.S. Navy Command has paid particular attention to the questions of landing training for the marines. Brigade-level landings are practiced regularly in numerous national exercises as well as in the maneuvers of the NATO Joint Armed Forces in various regions of the European continent and on the islands of the Caribbean Sea.

From the experience of the exercises held, for landing the brigade on an enemy coast, a landing force is organized which includes the landing ships and transports, the close security vessels and the cover forces. The number of these forces assigned to transport by sea and land the expeditionary brigade can vary. This is determined by the composition of the troops to be landed, the loading method and the presence of combat and landing vessels in the fleet.

The foreign press has pointed out that for conducting an amphibious landing operation involving a brigade, the following can be employed: a command ship (a regiment landing control ship), a general-purpose landing ship or a landing helicopter ship, one or two landing-helicopter dock ships, one or two landing transport docks, one or two tank landing ships, five or six cargo and troop transports. The loading of the personnel and military equipment on the ships and vessels is carried out in a dispersed manner, at several points which sometimes are significant distances apart and requires one or two days. Initially, the supplies are loaded then the equipment and weapons and last the marines are loaded during the day or night prior to the setting of the force to sea. In the course of the entire loading, there is maximum observance of the principle of the tactical integrity of the units and subunits, that is, entire subunits with their equipment and weapons are loaded on individual boats and vessels so that they can quickly unload on the shore and immediately enter battle.

The personnel of the assault companies and the amphibious armored personnel carriers which are to carry out the landing are loaded on the tank landing ships. The artillery and the tanks along with their crews are loaded on the tank landing and landing craft. The latter, in turn, are carried in the dock compartments of the landing-helicopter dock ships and landing transport docks. A portion of the tanks and artillery is also loaded on the tank landing ships. The personnel of the helicopter assault forces with their personal weapons is carried on the landing helicopter ships. The remaining subunits of the brigade are loaded on troop transports while the supplies are on cargo vessels.

The crossing by sea is usually made in a single landing party, its cover is provided, as a rule, by a carrier multipurpose group and task force capable of combating aviation, submarines and surface vessels.

An essential condition for the successful landing of an amphibious assault force is considered to be the winning of supremacy at sea and air superiority in the landing area. For this reason, 10-15 days before the landing, preliminary preparations of the landing area are commenced. This includes reconnoitering of the landing area and the system of the antilanding defenses, the making of air strikes against ships at sea and at bases, against airfields in the landing area or near it, against command posts, communications centers, antiaircraft missile units, shore missile and artillery positions, radar posts, and against troops defending the coast as well as the destruction of engineer-designed obstacles in the water and on shore. Depending upon the nature of the antilanding defenses on the coast and the size of the enemy ship and air groupings in the landing area, the period of preliminary preparations can be shortened. Preparations may also not be made (with the exception of reconnaissance) if the landing is to be made covertly.

If it is felt that the isolating of the landing area and the maximum neutralization of the enemy resources defending the seacoast will ensure the successful landing of the Marines. This task can be carried out by the tactical air forces and beyond its range by carrier-based aircraft.

With the arrival of the landing party in the landing area (usually during the night before the start of the operation), the landing ships and transports take up the external station and maneuvering areas a distance of 10 miles offshore (Fig. 2) outside the effective firing by artillery pieces with a caliber of up to 155 mm. The all-purpose landing ships and landing helicopter ships are positioned further to sea. The station areas are covered from the air by carrier-based aviation and from the sea by ships which are part of the immediate security of the landing groups. In the station areas, the landing ships and transports anchor or drift 8-10 cablelengths (1,500-1,850 m) apart.

With the coming of dawn, the final air and artillery softening up commences for the landing area with strikes being made by aviation and naval artillery and then with the fire support helicopters against the defensive works, firing positions, troop and equipment accumulations. Simultaneously, the landing ships move from the external station and maneuvering areas to the internal ones which, depending upon the degree to which the enemy weapons on the shore have been neutralized, are located from several miles offshore beyond the limits of artillery fire using direct laying. In these areas, 2 hours prior to the start of the landing, the landing craft are lowered from the landing ships and transports and the personnel of the assault subunits of the party load into them.

Having taken the marines onboard, the launches move to the assembly and wave formation areas which are several cablelengths away from the inner station areas. Also arriving here are the amphibious armored personnel carriers and the tank landing craft with their tanks onboard. The planned waves and the "call-in" waves are made up from the armored personnel carriers and the landing craft, and according to the landing schedule, they begin to move toward the jump-off line which is 8-20 cablelengths (1,500-4,000 m) away from the shoreline. In crossing the jump-off line the landing forces form up in a line at a distance of 50-100 m apart. The movement from the jump-off line starts in such a manner that the first wave in all the landing areas arrives simultaneously on shore. In the first two planned waves which include 8-10 amphibious armored personnel carriers are the assault companies with light weapons, and in the third and subsequent waves consisting of the landing and tank landing craft as well as the amphibious armored personnel carriers are the main forces of the battalion landing group.

The time interval between the first and second waves is 2-3 minutes, and between the subsequent ones, 10-15 minutes and more. The landing of the assault companies is supported by the fire support helicopters, carrier aircraft, naval aviation and naval artillery. With the approach of the first waves to the jump-off line, the fire of the ships, the air and helicopter strikes are shifted in depth and to the flanks of the defending enemy troops. Having landed on the shore, the Marines immediately enter battle, without a halt they seize the prevailing heights and lines, they force back the enemy from the shoreline, thereby securing the landing of the subsequent waves of the party

with the artillery, tanks and other subunits which, in supporting the landed companies, widen the seized beachhead. Following the planned waves come the "call-in" waves which include the remaining portion of tanks and artillery, air defense weapons and the other subunits of the brigade.

The foreign press has pointed out that a marine regiment would usually land in battalion landing groups along a front of up to 10 km. The battalion groups are landed in 10-15 planned waves and "call-in" waves on a section of the coast 2-2.5 km wide. The distance between landing sections is 4-5 km.

Judging from the experience of the conducted exercises, the landing of the first echelon of the main forces of a Marine expeditionary brigade numbering 6,000-8,500 men would take 8-10 hours and up to 30 hours for the second echelon.

For providing support to the assault subunits, simultaneously or 15-20 minutes after their reaching of the coast, the landing of an airborne party (as a rule, up to a battalion strong) is envisaged in the rear of the defending enemy some 10-15 km behind the coast.

The foreign press has given the following procedure of actions for the helicopter assault force. The transport-landing helicopters, having loaded the Marines from the all-purpose ship, the landing helicopter carrier and the landing-helicopter dock ships, take off and head to the assembly area of the flights and then move to the wave formation area. Here the helicopter flights from the different ships form into waves and begin to move to the landing areas. The first wave includes a maximum number of helicopters (usually 13-15) which can lift off simultaneously from the landing ships, while the subsequent ones have 9 or more helicopters. The time interval between the waves is 6-8 minutes. The first two waves transport the assault company. It seizes a staging area, it organizes defenses and supports the landing of subsequent waves which move in the remaining subunits and combat equipment of the battalion landing group. The flight of the helicopters to the landing area and back is made along a single route across control points and stacked in altitude. Having brought in the personnel, they pick up wounded and return to the ships for ferrying the next parties. The landing time (6-8 hours) for the basic subunits of a battalion landing group depends upon the number of helicopters involved in the assault force. A helicopter assault force conducts combat operations for linking up with the amphibious assault force and for jointly carrying out the set mission.

In the opinion of American military specialists, in comparison with the landing craft and amphibious armored personnel carriers, helicopters are the most effective means for landing the assault force on the shore from ships which are outside direct visibility from the coast. The landing craft are not sufficiently fast and can land Marines from ships which are only a short distance offshore. However, it is felt that with the commissioning of a new air-cushion landing craft (this is presently being tested in the United States) and a new air-cushion armored personnel carrier which may replace the LVTP-7 armored personnel carrier at the end of the 1980's, it will become possible to make a rapid landing of the assault force from ships which are a significant distance

offshore. This, as has been pointed out in the Western press, will make it possible to reduce the vulnerability of the landing ships and reduce the time that the landing forces are under enemy fire.

The broad range of missions carried out by an expeditionary brigade, the focus of the combat training, the organizational structure and the prospects for further increasing combat capability indicate that in the event of the outbreak of armed conflicts, particularly in areas remote from the United States, these formations will be the forward assault detachments of the interventionist "Rapid Deployment Forces" and a device for intervening into the affairs of other nations.

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